

Culture, Chronology and Change in the Later Neolithic of North Mesopotamia

Stuart Campbell

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The research and composition of this thesis is entirely the work of the undersigned

Stuart Campbell

Abstract

The aim of this thesis is to examine the spatial, temporal and social patterning of the late Neolithic of north Iraq. In traditional terms, this covers the Hassuna and Halaf cultures. Underpinning much of the analysis is a new chronology for the period which fits the available evidence better than has been achieved previously. This chronology emphasises the continuities as much as the changes and stress has been laid on making it general and able to accommodate regional variations. Important new information on the transition between the Hassuna and the Halaf was obtained by the excavation of one site, Khirbet Garsour, and the detailed surface collection of others in the North Jezira Project survey. Instead of this transition being very abrupt, it is argued that it is a smooth change in north Iraq with considerable cultural continuity. The spread of a single ceramic style over central and northern Iraq and northern Syria is proposed as occurring late in the Hassuna/Samarran sequence rather than several hundred years later in the Halaf.

In chapter 6, it is argued that the period saw a progressive degradation of the environment in the main areas of settlement, which may have had an important influence on potential subsistence strategies. Chapter 7 presents new information on the sites from the North Jezira Project survey in north Iraq. Site distributions are analysed on as fine a chronological scale as possible and an emerging settlement hierarchy by the end of the Halaf is suggested. This chapter also considers how space was used within sites and suggests that major changes in the composition and relations of social groups may have occurred during this period. Chapter 8 evaluates evidence for long and short distance exchange systems using the examples of obsidian and pottery. It is suggested that exchange of raw materials was already taking place in a sophisticated manner even at the start of the period. There is evidence that these exchange systems were becoming more complex and transferring larger quantities of goods by the end of the Halaf and that new types of products are being included in the exchange. Chapter 9 looks at the burial evidence and suggests that, although there is some evidence for competition, there is little indication of social hierarchies. Chapter 10 re-examines the Burnt House at Arpachiyah and suggests that it indicates not just social and political control but bureaucratic means of administering it. Certain types of pottery were probably restricted to specific prestige contexts in the late Halaf.

It is suggested that the traditional culture group is not well suited to describing spatial entities in this period. Instead, stylistic analysis may be an important future method and new techniques for the analysis of decoration are proposed. Finally, the scale of social development is discussed and it is suggested that significant developments in social organisation of long term significance took place in this period.

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Chapter 1

Introduction

This thesis aims to investigate various aspects of the late Neolithic in north Mesopotamia. These aspects include the chronology, the social organisation and the changing cultural adaptations. Both the chronological and geographical scope will be elaborated on below.

The phrase late Neolithic is used here as a convenient blanket term to describe what have been conventionally called the Hassuna and Halaf cultures. No specific chronological, cultural or technological implications are intended and it is used purely as a term of convenience to refer to the period covered in this thesis. It thus includes the time range from the start of the sixth millennium to the middle of the fifth millennium (uncalibrated BC). In terms of pottery it runs from the Proto-Hassuna to the end of the Halaf. The use of this term does, however, agree with its recent adoption by Akkermans for the same periods in the Balikh valley (Akkermans 1990, 3).

The history of the study of the late Neolithic of north Mesopotamia is of a series of advances separated by long periods in which little interest was taken and in which few new discoveries or approaches were made. Interest in the Halaf culture has increased in the last 20 years, arguably partly due to the influential paper by LeBlanc and Watson (1973), but active research into the preceding cultures in north Mesopotamia has been even more intermittent.

Halaf pottery was first excavated by Garstang at Sakçe Gözü (Garstang 1908). More material was uncovered at Yunus in 1912-13 (Woolley 1934; Dirvana 1944) but the Halaf was only fully identified after Oppenheim's excavations at the eponymous site, Tell Halaf, between 1911 and 1929 (Oppenheim 1943). These early investigations were followed by several excavations in the 1930s which still provide much of the basis of more recent studies. Excavations investigated the Halaf at Nineveh (Mallowan 1933), Arpachiyah (Mallowan and Rose 1935), Chagar Bazar (Mallowan 1936), Tepe Gawra (Tobler 1950) and Tilki Tepe (Korfmann 1982). After this there was a long gap with virtually no investigation into the Halaf until the end of the 1960s; the brief excavations at Gird Banahilk (Watson 1983a) and Tell Turlu (Mellink 1969; Breniquet 1991c) are the major exceptions.

The presence of cultures from before the Halaf period was hinted at through their ceramics in the first half of the twentieth century. In Syria, this occurred both at Sakçe Gözü (Garstang 1908; Garstang *et al* 1937; du Plat Taylor 1950) and, with the altmonochrome, at

Tell Halaf (Oppenheim 1943; Bartl 1989). Secondly, and influentially, earlier material was discovered in the deep sounding carried out by Mallowan at Nineveh (Mallowan 1933). Although this and other excavations (especially at Samarra [Herzfeld 1930]) suggested something of the nature of the pre-Halaf ceramics, the next major advance in our knowledge in northern Iraq only came in 1943-44 with the excavation of Tell Hassuna (Lloyd and Safar 1945). The excavation of this site was, and to a considerable extent still is, crucial to our understanding of the entire Hassuna period. Its importance lies in isolating the major ceramic components and the relative order of the Archaic Hassuna, Standard Hassuna and Samarran pottery types. Surprisingly, little has been added to our knowledge of this broad ceramic development of the later Hassuna by subsequent excavations. It also suggested, although it failed to clarify, the presence of a preceding phase in level Ia characterised by much coarser ceramics, here called the Proto-Hassuna.

Two of the studies of Samarran/Hassuna ceramics at Matarrah and Baghouz carried out under Braidwood (Braidwood *et al* 1944; Leslie 1952) debated whether it was a true independent ceramic assemblage and culture or whether it was simply a variant of the Hassuna. More significant, however, were a series of excavations commenced in the mid- to late-1960s and all involving large horizontal exposures. Those at Tell es-Sawwan provided the first detailed information on a site with purely Samarran type ceramics (El-Wailly 1963; El-Wailly and Abu al-Soof 1965; Wahida 1967; Abu al-Soof 1968; Al-Adami 1968; Yasin 1970). The excavations at Umm Dabaghiyah elucidated the earliest portion of the Hassuna (Kirkbride 1972; 1973a; 1973b; 1974; 1975). The entire Hassuna period, as well as the Halaf and to an extent the Ubaid period, were investigated during the Russian excavations between 1969 and 1980 at Yarim Tepe, Kultepe and Tell Sotto (Munchaev and Merpert 1981; Bader 1989). In the 1970s the extensive excavations at Bouqras have been equally important (Akkermans *et al* 1983). Smaller, but nonetheless important, investigations also took place at Girikihaciyan in Turkey (Watson and LeBlanc 1990) and Tell Aqab in Syria (Davidson and Watkins 1981).

Most recently many more sites have been excavated. Most of these are as a result of rescue excavations in advance of flooding by new dams in Iraq, Syria and Turkey. These include Shams ed-Din (Al-Radi and Seeden 1980), Umm Qseir (Hole and Johnson 1986-87), Tell Hassan (Fiorina 1981; 1985; 1987), Kharabeh Shattani (Watkins and Campbell 1986; Baird, Campbell and Watkins forthcoming), Tell Kashkashok (Matsutani 1991), Kurban Höyük (Algaze *et al* 1986) and Çavi Tarlasi (von Wickede 1984; von Wickede and Misir 1985; von Wickede and Herboldt 1988) along with several other, less extensively published, sites. Due to the circumstances, all of these excavations have tended to be relatively small both in area and quantity of material excavated. Nonetheless, as these sites were not selected for excavation due to their size or the expected richness of finds but by their position in a threatened landscape, they form a type of site which has tended not to be excavated in the past and, therefore, a potentially valuable counter-balance to the major tells. A few sites have

been the subject of research excavations and have provided major new information; the sites in the Balikh valley are especially notable (Akkermans 1987; 1989a; 1989c; 1990). An increasingly important source has been information from surface survey (Meijer 1986; Wilkinson 1990b; forthcoming; Algaze *et al* 1991; Akkermans 1990).

The renewed interest in the Halaf has been reflected in several detailed analyses. PhD theses have formed the basis for this work. Davidson's (1977) formulated a detailed chronology and, in particular, identified the importance of trade in explaining the pottery distributions. Hijara's (1980) was based on the important new excavations at Arpachiyah. Breniquet's (1990) investigated the end of the Halaf period and its transition into the Ubaid, an area of study earlier highlighted by Davidson. Finally Akkermans' (1990) has provided an analysis based around the Halaf but covering important earlier material and concentrating on the Balikh valley in northern Syria.

In contrast to this activity, the periods between the end of the aceramic Neolithic and the Halaf have been relatively neglected. Most of the interest has been focussed on the Proto-Hassuna, with a considerable number of excavations since 1970, or the relationship between the Samarran and the Ubaid, both in terms of the transition between them, as seen at Choga Mami (Oates 1969; 1987a) and Tell Oueilli (Calvet 1987), and regarding possible architectural links (Forest 1983b). While these remain important subjects, it has left a great imbalance in published research. One advantage of the approach taken in this thesis is that it takes the Hassuna and the Halaf as a whole rather than dividing them into artificial, and possibly misleading, divisions.

There have been variety of recurrent themes which have attracted interest in the past. Amongst them, the question of Halaf origins and the nature of its expansion have perhaps attracted most consistent attention. Its contrast with the Hassuna has been emphasised in particular:

"... the Hassuna culture was replaced in the Sinjar Valley by the new, genetically foreign Halaf culture. The latter was connected with a new ethnic group that had imposed cultural unity over a wide range of Eastern Mediterranean, Northern Mesopotamia and Eastern Turkey. The questions as to the genesis of the Halaf culture, its original territory and the way of its spreading remain open to further studies." (Munchaev and Merpert 1981, 282)

The question of Halaf social organisation has also been raised to a certain extent. However, in his introduction to his regional study of the Halaf in the Balikh valley, Akkermans stated that:

"serious difficiencies in the understanding of Halaf society occur at virtually every level of investigation. Not only are the origins and chronological positioning of Halaf society poorly understood, but any interpretation of economic or social organisation hardly goes beyond the level of speculation either." (Akkermans 1990, 4)

While this, unfortunately, is true for the Halaf, it is even more so for the preceding periods. The Hassuna has received no general overview in recent years. Most interpretations have been taken almost intact from the original report of the excavations at Tell Hassuna which, although an important source, cannot be considered sacrosanct.

Dealing with the data from the late Neolithic as a whole poses major problems. New material is constantly being published and needs to be integrated. Unfortunately, final reports from many key sites are not yet available or come only from limited exposures. It is often impossible to replicate the type of data which comes from older excavations so that this material must be re-interpreted in the light of more recent discoveries. However, the standard of older excavations and their publication is almost inevitably inadequate to answer current queries. It will be a recurring theme throughout this thesis that the primary data is often of such poor quality as to make any detailed analysis hazardous. Equally, the excavations, old and new, are often widely scattered so that we do not have multiple sites from most regions or continuous sequences of occupation. There are so many lacunae in our knowledge of particular areas and periods that it is almost impossible to study fully all the data in its spatial and temporal context.

Previous Approaches

No comprehensive literature review will be attempted at this point. The major sites have been outlined above and individual points of fact or interpretation in more detailed studies will be discussed in depth at relevant points within the thesis. However, it may be useful to survey some of the more general approaches to the period, as they have a tendency to shape the forms of the questions asked in more detailed studies. Even where the superficial structure frames the questions differently, there are often much more traditional assumptions underlying them. In particular, in this selective account of some of the main themes of past work it is intended to emphasize some of the reasons why a new re-assessment of the period is merited and to highlight some of the problems in earlier work which will be discussed later in more detail.

The culture model

Although the late Neolithic of north Mesopotamia has been examined in different degrees by many different scholars over the last forty years, the basic underlying assumptions and models have remained essentially unchanged in most of the studies. The key unit of description and analysis has been the traditional culture group which has defined the Hassuna, the Halaf and the Ubaid cultures, with some attempt to sub-divide the Hassuna into a true Hassuna culture group, preceded by the Umm Dabaghiyah/Tell Sotto culture group. Although, the culture concept was never taken to such lengths as, for instance, in Europe where, at times, single pottery styles alone were taken as representing entire culture groups, there has also been little attempt to refine the concept, making use of the different approaches

common elsewhere, or to examine whether the traditional culture concept is the most appropriate model for this period and time.

The modification of the culture concept usually used in north Mesopotamian prehistory is close to that initially proposed by Childe: "We find certain types of remains—pots, implements, ornaments, burial rites and house forms—constantly recurring together. Such a complex of associated traits we shall term a 'culture group' or just a 'culture'" (Childe 1929, v). Childe later defined the archaeological culture much more cautiously, emphasizing its subjective definition and the danger in identifying precisely what it equated to, socially, linguistically or politically (Childe 1951, 40). However, it is, in essence, his earlier definition which has been used to describe and interpret the north Mesopotamian late Neolithic.

Despite this theoretical definition of culture groups as an association of multiple traits, even Childe goes on to say such things as "The new culture is defined by the pottery, termed Halafian after Tell Halaf, and, as thus defined, it extends from the Iranian foothills ..." (Childe 1952, 110). This and similar statements elsewhere indicate the primacy of pottery in determining for Childe the culture boundaries in the Near East, although other aspects of the culture are enumerated. This formal acknowledgement of the polythetic nature of culture followed by the definition of the culture primarily based on the ceramic remains also occurs in many other studies of the late Neolithic in north Mesopotamia.

Outwith the Near East, the use of the archaeological culture group as a valid concept at all has been questioned. Binford was one of the early critics (Binford 1962). More recently, Renfrew has pointed out the tendency of the definition of a culture group to be a self fulfilling prophecy, by starting at one site and using that site's finds as the basis for the definition of a culture. The type site then defines the culture group, adjacent points inevitably will have a similar culture, the similarity of which will decrease the further one moves from the centre and the edges of the culture group will be defined by an arbitrary drop off in similarity (Renfrew 1978).

It is interesting that, to a great extent, the traditional culture groups remain acceptable on an intuitive level (e.g. Watkins and Campbell 1987, 428-429). There does seem to be a difference in architecture amongst the sites associated with Hassuna, Halaf, and Ubaid pottery. Similarly there is a change in general figurine type, small finds such as seals and so on. However, an intuitive belief, supported by a broad and rough correlation of change across several artefact types, does not establish the case for the culture concept being the most appropriate model; equally it does not prove that it is not.

There may be inherent problems in using the culture group model. If we view the late Neolithic as divided into discrete culture groups, defined by a core of associated traits, it may have the effect of emphasising the dichotomies between the culture groups. We will then have to look for explanations of the transitions between the cultures which account for apparently major changes in adaptive strategy. If we use some alternative model, more loosely defined and emphasising the continuities in some aspects of culture, then the

explanations for change need be much less dramatic and possibly disappear altogether. Imposing a model from the start carries the risk that it might prove unsuitable. Therefore, the question of whether traditional culture groups could be said to exist will be re-addressed in the conclusions after the evidence has been presented. Although the conventional terms of Hassuna and Halaf will be used, they will be treated as chronological divisions to retain compatibility with previous work. *A priori*, they need not be the optimum chronological divisions or correspond to culture groups.

Previous work

Traditional accounts, such as Mellaart's (1975), have tended to avoid theory or detailed examinations of possible social changes. Instead they have been essentially descriptive, often employing concepts introduced by Mallowan in his original and extremely influential publication of Arpachiyah (Mallowan and Rose 1935). Perhaps the most interesting aspect of Mellaart's study is his thesis of an expansion in the middle Halaf to cover, for the first time, a vast area with a unified culture (see also Copeland and Hours 1987a).

In contrast, Redman (1978) adopts an explicitly systems theory approach to the post-glacial developments in the Near East. He devotes proportionately very little time to a discussion of the late Neolithic period in Mesopotamia, concentrating instead on the development of agriculture and the immediate period leading up to the appearance of urbanism. He does acknowledge the possible falsity of this assumption of relative stability in the intervening period (Redman 1978, 8) but does not explore it. This tendency of the late Neolithic to fall between the two great 'revolutions' of agriculture and urbanism, which have influenced so much research in the last thirty years, is a recurrent problem in most of the more general studies.

Redman stresses the fact that society is composed of interacting subsystems, one of which is culture, itself composed of its own subsystems. Despite this, he divides the late Neolithic of north Mesopotamia primarily by pottery type. He acknowledges this (Redman 1978, 188-189) and uses the terms Hassunan communities, Samarran communities etc., but the entities he is describing remain the traditional, ceramically defined culture groups. Some of the terminology is different but the analysis is almost identical.

He follows an unpublished paper of Watson and LeBlanc (1973) in suggesting that the Halaf and Samarran sites represent a transition to chiefdoms (Redman 1978, 205-206) or ranked society (Redman 1978, 209). While this and many of Redman's arguments are defensible, they depend on several earlier opinions and an untestable accuracy of excavation being accepted without question. The questions that Redman (and behind him Watson and LeBlanc) propose are interesting and valid, but Redman's treatment, at least, remains superficial. It is, however, a good example of the problems inherent in taking an explicit, theoretical approach and applying it to archaeological entities which have been defined from an almost diametrically different stand-point; a very unsatisfactory position.

Although Breniquet has studied the transition from the Halaf to the Ubaid, her approach has some relevance to the earlier period (Breniquet 1987; 1990). She rejects the identification of the Halaf and Ubaid culture groups with specific ethnic groups. She treats culture as an entirely functional adaption to the external environment (Breniquet 1987, 234 following Leroi-Gourhan 1973) and treats the question of change as an evolutionarily advantageous adaption. Seen in this light she argues that there is evidence for quite early borrowing from the Ubaid tradition into the Halaf tradition which enabled a major borrowing of Ubaid traits by the Halaf when that became advantageous. Whether earlier developments and transitions may, perhaps, be visualised in the same way will again be considered in the conclusions.

The Proposed Approach

Problems in studying the late Neolithic

Because of its very nature, the archaeological evidence for the late Neolithic in north Mesopotamia never allows us to examine the nature of society at any single time. The evidence from any given phase is the conflation of, probably, several centuries of remains. The definition of the chronology of the period is too low for us to be confident that we are anywhere dealing in phases of, say, less than 250 years. Therefore, not only is there the problem of dealing with a system (the term is used loosely) which may be in a state of constant, gradual change, but the system which we identify must itself represent a merging of the remains of society over a period of this change.

This is most obvious, in some ways and certainly most commonly acknowledged, in dealing with site distribution plans. These are not the distribution of sites at any one time, but the composite build-up of sites over a time period which we can define accurately. This problem, however, also occurs when dealing with any of the material evidence. Even in one phase of a single site, the finds will have accumulated over some period; if the site has been destroyed by fire, this may be a short period; if it has been gradually abandoned, it could be over tens of years. Whenever one is dealing with evidence from several sites, there is a greater degree of conflation. In ideal circumstances, with abundant radiocarbon dates to provide absolute dating of each site, it is doubtful if we could be confident that artefacts from different sites which appear to be 'contemporary' actually date from less than within 100 years of each other. When we are dealing with a combination of a patchy radiocarbon chronology and the pottery chronology for the late Neolithic in north Iraq, it is more realistic to assume that apparent contemporaneity can mean anything from truly dating to the same year to being only separated by 100 years. The difficulties of this situation are compounded by the normal archaeological problems of deposition of an artefact being separated from its manufacture by an unknown length of time.

Outline of Thesis

The approach to these various problems which is proposed here is to treat the archaeological record as strictly polythetic. There is no single fundamental element to it; it is the product of the inter-relationships between the component parts. A number of distinct areas of culture will be examined separately. Although no sort of formal systems analytical approach will be adopted, Clarke's classification may be conceptually useful (Clarke 1978). The areas studied correspond to an analysis of several artefact types, the religious sub-system, the settlement sub-system and some of the components of the economic sub-system.

Unfortunately, although theoretically desirable, it is in practise very difficult to treat all attributes equally. It is impossible to be truly independent of the pottery derived chronologies in this period. There are a number of good reasons for this. There are no sites from the long time span considered here which have a sufficiently large corpus of finds in any single category, from secure contexts and well published, for a detailed independent study of any other artefact for that site alone. The use of absolute dating does not avoid this trap as the absolute dates must be interpreted in relation to the pottery sequence more than anything else. At the moment it is not practical to even envisage the possibility of a sufficient number of precise, intercomparable dates to allow us to avoid the use of the ceramic based chronology.

Although this position is not ideal, it must be recognised that, on the present quantity and quality of evidence, it is a limitation which must be accepted and acknowledged. To ignore it entirely, or to attempt to avoid it and use the present limited evidence, would lead to much greater misrepresentation and unfounded hypotheses than to knowingly attempt to work with it. Where the non-ceramic evidence indicates that the pottery sequence is not representative of the development of the rest of the material culture, this will be highlighted. In particular, there are important hints that changes in ceramics do not necessarily correspond to changes in other aspects of culture.

The geographic scope of this thesis is, in general terms, north Mesopotamia. However, the concentration on development through Hassuna to Halaf restricts it to a smaller area in the north of Iraq, the northeast of Syria and the southeast of Turkey. Nonetheless, it is often necessary to look beyond this central area to understand fully the developments which took place. For instance, it is impossible to try to understand the development of the Early Halaf without detailed reference to that phase at Tell Sabi Abyad as well as the preceding phase. However, a conscious attempt has been made to avoid detailed discussion of the changes which took place on the fringes of the area. Thus, although the Samarran material at Tell es-Sawwan is used in detail because of its important links with the area to the north, there will be little discussion of the Choga Mami Transitional. This rather arbitrary border is necessary both to restrict the scope of this thesis and to focus it on specific questions.

One aim of this thesis is to provide a synthetical account of the late Neolithic period of north Mesopotamia, particularly north Iraq. It is not pretended that it is possible to synthesise

with a similar degree of expertise all aspects of the period. Some areas, such as botanical and faunal remains, are outwith the ability of the writer to re-examine fundamentally; such areas are discussed in terms of the published evidence and interpretations, and it is attempted to combine these aspects into an overall understanding of society. Other areas have so little published material that there is little that can be said, although their potential value remains high; lithics are one example. However, there has not been an attempt to interpret the period through a fundamental synthesis based on a re-examination of the basic evidence since Perkins (1949).

A secondary aim, and one which is to some extent a pre-requisite of the first, is a detailed study of the chronology of the period to provide a framework in which all other work must be conducted. If there is no evaluation of the contemporaneity of sites, the approximate length of periods and, perhaps most importantly and least often discussed, an evaluation of the approximations and inaccuracies of our chronological knowledge, any subsequent discussion which is based on a presumed chronological proximity or distance will be undermined and misleading. This part of the thesis is concerned with the problems which were raised previously, without satisfactory conclusion (Watkins and Campbell 1987). It is hoped that a new chronology will be proposed which combined reasonable precision with a realistic assessment of its accuracy.

If these synthetical and chronological ambitions can be achieved, the most basic aims of this thesis will have been attained. However, there remain two others which are of major interest in this study but whose investigation is dependent on, and inter-related with, the success of the first two subjects.

The first is the definition of the spatial and chronological entities in this area and time. The analysis of the nature of these entities and of the processes through which these entities interacted may indicate whether the traditional archaeological culture is an appropriate model. This, of course, has a fundamental influence on the way we perceive transitions within the area and the relations with surrounding areas.

The second is to investigate the development of social complexity in this period. There has been a huge amount of work, both practical and theoretical, on the development of agriculture and on the rise of urbanism. However there has been relatively little interest in what developments took place in the intervening period between the two processes. If the increase in complexity and sophistication of society is viewed as a line graph, are there two steeply rising lines of the advent of agriculture and urbanism, separated by a plateau? Or is this area of the graph also rising, perhaps more gently, but perhaps representing a period in which some of the basic prerequisites of the subsequent rise of urbanism developed from the preceding economic changes? Renfrew has stated that

“‘agriculture’ and ‘civilisation’ are both relatively well-defined concepts (at any rate until they are examined more closely), [but] the same can scarcely be asserted for the study of these food-producing yet non-urban societies

which, on any simplistic trajectory, are conceived as lying 'between' the two. The problems are often less clear-cut and the concepts less clearly formulated ... The situation is yet worse [than in Europe or North America] in regions where fully fledged state societies developed relatively early—such as Mesopotamia and Mesoamerica.” (Renfrew 1982, 2)

Although its successful study is dependent on the success of the more basic aims, it is questions like this for which chronological, synthetical and specialised studies form the base, and it is worth some attempt at studying them to establish the value of greater concentration on this period in the prehistory of the Near East. Ultimately the success of this thesis is perhaps the degree of its contribution towards the description and understanding of the development of social complexity in north Mesopotamia. At a minimum, it is perhaps not too much to hope to at least point towards the questions which ought to be asked.

In chapters 2 to 4 of this thesis, the pottery sequence will be examined. The framework used will be to discuss the chronology of the Hassuna (from the Proto-Hassuna variety onwards) and the Halaf ceramic styles individually. Although much of the data in this chapter has been published before, many of implications have not previously been investigated and the approach adopted here is new. Important new assemblages are presented from the sites of Khirbet Garsour and NJP72 in north-west Iraq, which were investigated as part of this thesis.

Then, in conjunction with the ^{14}C dates available for the period, these new assessments of Hassuna and Halaf phasings will be combined in chapter 5 into a chronological scheme which will be used subsequently. Because this scheme is dependent on the ceramic evidence and because of the ramifications of this, discussed above, the Hassuna and Halaf ceramic phases, and sub-divisions and modifications thereof, will be used as the dating criteria for the other aspects of culture to be discussed. Much of the effort in the ceramic analysis has gone into the analysis of the decoration which is such a prominent aspect of the pottery from this period. The only previous attempt to analyse decoration over a wide area in this period has been the study of Halaf motifs by LeBlanc and Watson (1973). Although important, this article has significant failings and the analysis undertaken here attempts to be more comprehensive and reliable as well as more flexible. It is particularly important as it is used not just in the chronological study but also forms the basis for examining the style of the pottery decoration and its social implications in chapter 11.

The second part of the thesis examines the environmental and subsistence evidence, settlement distribution, architecture, burials and the evidence for exchange. One chapter will be devoted to a study of the status of Arpachiyah, based on a detailed re-examination of the material from the TT6 Burnt House. These chapters attempt to summarise and provide new analyses of the primary data. However, the discussions in each chapter are deliberately restricted. A maximum understanding of the individual sectors of culture can only be gained through looking at the interactions between them. Some of the discussion will, therefore, be

delayed until the concluding chapter which looks at both the spatial and temporal distributions of the period and the changes in the complexity of society. In this final chapter, the role of ceramics, and especially their decoration, in society will be discussed and possible changes in this role highlighted, and an attempt will be made to describe and explain the processes of development within the late Neolithic of north Mesopotamia.

Chapter 2

The Ceramic Analysis: Approaches and Methodology

The Pottery Recording System

Although not its ultimate aim, the analysis of ceramics inevitably forms a large portion of this thesis. Therefore, it seems appropriate to discuss the methods of recording pottery which provides the basis for the chronological and stylistic analyses elsewhere in the text and the theory which underlies these methods. The recording system outlined was devised at the start of the study for this thesis, originally on Ubaid pottery from Tell Abu Dhahir in the Saddam Dam Salvage Project, but has been applied to a wide variety of pottery, both to original material in the field or museums and, to as great an extent as possible, to previously published data.

Although in the past a wide variety of systems have been used to record the details of shape and decoration of pottery in north Mesopotamia, very few have had an explicit methodology. The results of the systems are only described in general terms, rather than the reasons for and functioning of the system itself. This is important as, particularly with decorative schemes, the level of detail chosen for analysis has a critical influence on the results. Two major approaches have been used.

The first is through the definition of wares (e.g. Lloyd and Safar 1945, 276-283). A ware is considered to be a group of pottery with shared characteristics of form, fabric, technology and decoration. 'Standard Hassuna', 'Samarran' and 'Halaf' pottery are essentially all examples of ware categories. The major problem with the ware concept is that it has gained great currency as an abstraction of the data in Mesopotamia, as elsewhere (for example in chalcolithic Cyprus, for critique see Baird 1991), without any detailed justification. Intuitively there is often some validity in these ware types. Within most pottery assemblages, many different traits regularly co-occur. However, by definition, a ware is a polythetic entity which can only be shown to exist as a valid abstraction after detailed analysis of its

component attributes (Clarke 1978). Even if it is shown to be valid, there still remains a great danger of over-emphasizing the consistency of a ware rather than the degree of stylistic variation which exists within it. Because of these problems of poor definition of the traditional ware types and the danger of their use masking significant variations, the ware approach to ceramic analysis seems inadequate. Nonetheless, the fact that much of the primary recording at critical published sites has been done through the ware concept means that its terminology cannot be entirely discarded. Equally, there remains the necessity of having some form of short-hand to refer to general types of pottery. For this the use of terms such as Halaf pottery has been retained as general terms.

The second approach to recording pottery has been to treat shape and the occurrence of motifs as the two main variables, with a lesser concentration on other factors such as fabric, surface finish and paint colour. This has long history (being used to a limited extent even in Mallowan and Rose 1935) and has to some extent been used as a level of analysis operating within the wares concept (Mortensen 1970). In theory, at least, this type of analysis acknowledges the complexity of the many variables which define a ceramic assemblage rather than attempting to simplify them. Because of this, multivariate analyses of pottery have become increasingly important and have been adopted as the primary approach to the pottery of the late Neolithic in north Mesopotamia (for example Gustavson-Gaube 1981 and Campbell forthcoming a). Ultimately, the use of such approaches, not just to study the pottery at a single site but also to examine the relationships between sites, must be vital to understand the changes within the ceramic sequence in both time and space.

In this study a compromise position between the two approaches must be adopted. Where the primary data is available, a multivariate approach, or the syntheses from such an approach, has been used. More often, published data has had to be used and, in many cases, the ware concept has had to be accepted. Even in these cases, it seems vital to be aware of the weaknesses underlying the ware concept and to seek to define how it is being used in each case.

Sources of Variation

To a considerable extent, the fabrics used by potters are defined by the technology they are using and the form of the final vessel. Depending on the qualities of the clay, they may add a variety of agents to alter its characteristics during modelling, drying and firing and affect its final appearance. Included amongst these are liquids, organic material and mineral temper. Although the first is impossible to detect without detailed chemical analysis, the latter two may be visible to a greater or lesser extent in the fabric of the final vessel. The variations in these inclusions and the nature of the firing of a pot can, therefore, provide direct evidence on the technology used to produce it and, in some cases such as cooking vessels, the functional properties which were valued in the final product. To provide such information requires detailed analysis largely beyond the scope of this thesis. However, macroscopic observations

of fabrics can still provide less direct information. It may be hard or impossible to determine the reasons for variations, but it is possible to suggest that the variation indicates some form of change, possibly undefined, in the potting technology. In addition to this, however, there is a potential element of conscious or subconscious cultural choice in the treatment of fabric. Particular colours or surface finishes may contribute towards stylistic variation.

Similarly, the form of a vessel is determined by several factors. The technology of the fabric controls the possibilities. The function of the vessel will limit the potential shapes. Within the limits imposed by these two factors, certain features will be chosen or emphasized as part of the overall stylistic variation.

It is, however, very difficult to separate the stylistic variation in fabric and form from the limitations of technology and function. Without a far greater body of information on these constraints than exists for prehistoric northern Mesopotamia, this causes problems in its analysis. Decoration on prehistoric Mesopotamian pottery is a far clearer example of stylistic variation and is far more amenable to stylistic analysis. Very few forms of decoration have a direct functional role. Burnishing may, as a means of making a vessel less porous. Conceivably incision and impressed decoration might alter the surface area of the vessel sufficiently to have an effect on the thermal behaviour, although it seems very doubtful whether this would be the case with any of the decoration which will be considered here. Therefore, the decoration can be considered as having, almost entirely, a potential stylistic and, possibly, symbolic role. These perceptions of the likely role of variation in ceramic attributes have been emphasised in the following discussion of the recording methods used and the subsequent analyses of the data. Although the study of style was an important consideration in devising this recording system, its discussion will be delayed until chapter 11 and a more detailed discussion of the history and nature of stylistic analysis will be delayed until then.

Fabric Analysis

Fabric has been poorly recorded in most publications. It is usually either very generalised or absent entirely which makes it difficult to use quantitatively. In the recording carried out for this thesis, I have attempted to provide a consistent level of fabric analysis, albeit at a general level.

With the exception of the material from Khirbet Garsour, fabric descriptions were made individually for all the sherd material from the North Jezira Project in north Iraq. The colour of the fabric and variation within it was described using a restricted range of terms. Due to the quantity of recording necessary and the range of recording conditions, it was not possible to compare each sherd with a standard colour chart. However, the standard range of colour terms was 'calibrated' periodically against the Munsell Soil Colour chart (Munsell Color Company 1975) to ensure some degree of consistency. Each sherd was examined through a x8 eyepiece for inclusions. These were described in a subjective manner as fine, medium and

coarse in size and sparse, medium and dense in concentration along with a colour description where appropriate.

There seemed to be a small range of fabrics within the excavated assemblage at Khirbet Garsour and they were divided into fabric types for faster recording. This does make the Khirbet Garsour material slightly incompatible for some purposes with the rest of the North Jezira Project material. However, the assemblage from this site collected during survey was analysed as part of the North Jezira Project material in the manner described in the above paragraph and provides a directly comparable sample.

Form Analysis

A number of shape typologies have been employed, almost entirely within the Halaf. The complexity ranges considerably from Davidson's simple range (also used with modifications by this writer at Kharabeh Shattani; Davidson 1977, foldout 2; Campbell 1986, figs 37-38) to Hijara's large number with subtle divisions (Hijara 1980). All of these are based on complete vessel form. Any typology of vessel shapes encounters a variety of theoretical problems (see for example Rice 1987, 211-224), although by use of precise definition and continued revision as to the suitability of the categories, these could be overcome. However, with the late Neolithic material considered here there is a notable lack of the large numbers of complete vessel profiles from individual sites necessary to construct a totally trustworthy typology of complete vessel shapes. A major shape of vessel might be omitted from such a typology simply because of its absence from the corpus of complete vessels. Equally there might be an artificial separation of a single type of vessel into two or more categories; for example, if the separation is based on an assumption of a bipolar ratio of diameter to height when in fact the sample of complete vessels is too small to demonstrate whether or not this exists.

There is an additional common problem with a system based entirely on complete vessel shape in that most of the material studied is in sherd form. There are several effects. It restricts the use of sherds to those which are sufficiently well preserved to predict the original complete form; other sherds with useful information are not used. Secondly, there is a clear danger of misassignment of a sherd to the wrong form; for example, an apparently open rim sherd may be from the mouth of a jar as much as from a bowl (this may partly account for the apparent low proportion of jars from Kharabeh Shattani, Campbell forthcoming a). Finally, on its own, a typology based on the total form of a vessel may ignore more subtle differentiation, such as whether the rim of a simple hemispherical bowl is rounded, flat or pinched.

The primary method employed in the recording system devised as part of this thesis is to record information on the individual portions of the vessel which are preserved on a sherd. Thus, the rim form is recorded separately from the body, neck, base and body forms. The diameter was recorded for all but the last of these where it was determinable. Other exact

measurements, such as height and angle of neck, were not regularly recorded in an attempt to make an already slow recording system practicable. However, an attempt was made to define terms, such as 'low flaring neck', which can be applied precisely and consistently. Where the record sheet was to be the primary means of recording a sketch of the profile of the sherd was also made.

This method of recording individual attributes separately does allow a greater amount of reliable information to be extracted from each sherd and, to a large extent, allow patterns, which might suggest standard forms of vessels, to be recognised after bulk recording commences rather than being determined in advance. However, there remains some value in super-imposing a complete vessel typology upon it. There are clearly regular shapes of vessel which can be recognised as possessing a regularly co-occurring set of attributes. Perhaps the greatest advantage in using such a typology is when generalising from the data; it is much simpler to refer to pot shape C3 than to a pot with rim type 1A, neck type 2C, body type 2 and base type 1. Additionally, it is sometimes possible to recognise subtle differences in complete vessel form when the sherd is viewed as an entity which are virtually impossible to detect when it is viewed as a set of discrete attributes.

Therefore, in parallel with the recording of the shapes as a series of attributes, a general vessel shape was also recorded (see tables in appendix B). This almost always refers explicitly to the shape of the upper portion of the vessel. It includes examples of both very generalised shapes and shapes which can be further subdivided by examination of the attribute for a single portion of the vessel. These complete vessel types could be checked for internal consistency after recording had been completed against the attributes recorded for those sherds. It is also possible, in theory, to define shapes retrospectively either from the individual attributes or from the sketches although, in practice, this has not proved necessary.

It should be stressed that although summary results in the text of this thesis most frequently refer to the complete vessel shapes, this is largely for convenience of presentation and ease of understanding. Many of the reservations to complete vessel typologies outlined above still apply.

Analysis of Decoration

The analysis of decoration of vessels has been at the centre of a long series of debates on the nature of style and the best way to approach its analysis. Ultimately much of the methodology and the analysis used in the Near East can be traced back to the seminal studies carried out in the south-west of America (Deetz 1965 and Longacre 1964). This has largely focussed on design element analysis, design symmetry and the structure of the layout of the design. To varying extents all have been employed in the study of the prehistoric ceramics of Mesopotamia.

Design element analysis has formed the basis of much recent work on Halaf ceramics due to the influential paper by LeBlanc and Watson which defined a set of Halaf motifs

(LeBlanc and Watson 1973; also used in whole or in part by Davidson 1977 and Campbell 1986). Design symmetry and structure have been less frequently used. Von Wickede has undertaken a study of Halaf pottery through design symmetry (von Wickede 1981 and 1986). Structure analysis has been used more often informally but the only instance of a formal example in prehistoric Mesopotamia is that carried out by Hole on the Susiana beakers which, unfortunately, is not extensively published (Hole 1984).

All of these methods have potential and should be pursued in the future. The current study has concentrated on the first technique. Since the methodology of design element analysis has been criticised extensively, it is worth discussing here how and why it has been retained as a means of analysis. To some extent the criticisms are justified. The major area of general criticism has been the manner in which design elements are isolated (summarised in Rice 1987, 257).

The main difficulty is determining what is to be studied. A design element can be considered to be the most basic component of a motif, a single line or dot; it may describe the structure of a design such as a triangle which may be embellished in different ways, for instance by filler patterns; or it may be the objects most readily identified as forming individual entities which together make up the decoration. The last definition seems to be that used by LeBlanc and Watson to define their motifs (LeBlanc and Watson 1973). It is undoubtedly true that Halaf pottery, with the decoration frequently running in neat horizontal lines of repeated motifs, lends itself to such an interpretation and the structure of the design is such that it reduces the subjectivity to a minimum. However, the isolation of individual motifs over-simplifies the data. A row of lozenges filled with dots can be considered as a different motif to a row of lozenges filled with diagonal hatchures with the expectation that, in some way, this difference would also be recognised by the original potter. They are both, undoubtedly, different from an area of cross-hatching. However, they are more similar to each other than to the latter as they share the basic component of the lozenges. This is further complicated in other examples. The typical Ubaid rim decoration of a row of solid point-down triangles can also be thought of and, perhaps more importantly, more easily drawn as a zig-zag below a straight line with the upper part of the zig-zag filled. This is a problem which has not been adequately solved even in the more theoretically aware studies. Plog (1980, 44-49) has argued that motif analysis should be based on attributes which, following the definition of Clarke (1978), are mutually exclusive, alternative states. Undoubtedly the critique is justified both practically and theoretically. However, the solution is problematic in itself. Plog's example (Plog 1980, fig. 4.2 bottom) can be criticised in the sense that he takes a motif to be based on triangles (his primary motif) which are then filled or embellished in specific way (the secondary motifs). However, the primary motif could equally well be considered as a row of lozenges. To this must be added the practical difficulty in using a scheme similar to his for the huge number of motifs and motif combinations found on northern Mesopotamian ceramics.

Thus, it seems likely that it is theoretically and practically impossible to create a single, simple typology which will allow an adequate recording and analysis of the design elements. Any scheme used to describe the type of painted decoration found on late Neolithic ceramics in north Mesopotamia which can only be used in a single way is inadequate; only one which can be viewed in multiple ways, and in ways not originally envisaged, can handle the variety of questions asked of it.

The method employed here to overcome some of these criticisms is twofold. The initial recording was done using a motif list, similar to that of Watson and LeBlanc but constructed independently and much more complex. A new motif was added to the list whenever it occurred, even if it was a single example and even if it was nearly the same as another motif. This has resulted in the list of 626 motifs presented in fig. B.6 in appendix B. Apart from the difficulty in using such a system for recording large numbers of sherds, which can be overcome by organising them carefully, this method should mean that in any two occurrences of the same motif on different pots, the motifs employed should not only be similar, but the same. In theory no information should have been lost. In practice this could not quite be achieved; some variations in motif had to be lumped together, although only things such as the number of lines if it was three or greater.

As all of the data was to be analysed using a relational database management system (Borland's *Paradox version 3.5* in this case) on a computer, this complexity of recording presents few problems in later analyses. In addition to the three main databases recording the sherd itself and the motifs on its interior and exterior, an extra database was constructed which defined the relations between each motif. A number of relations were defined. One motif could be almost identical with another or just similar to it; it might have a basic component in common with other motifs, such as a row of lozenges or even something as simple as a straight line; it might share a common filling pattern, such as cross-hatching with other motifs. Thus, by using the correct syntax, it is possible to ask questions such as 'analyse all the sherds with motif 37 or any motif which is almost identical with it'; 'analyse all sherds with motif 44 or any motif of a similar nature'; 'analyse all sherds with motifs which have cross-hatching as a component'. To a large extent this allows one to have the best of all worlds; the recording system does not restrict the methodology. At the worst it delays the decision of what the most significant entities in a design may be until after it is recorded and one can then analyse it in more than one way before selecting the most appropriate. As with the form analysis, it allows a degree of retrospective classification. If a particular pattern is only recognised as significant long after recording, a completely new set of relationships can be defined.

The structure of the layout of the design was recorded in two ways. When the sherd size permitted, the general layout of the design was recorded in simple categories for both interior and exterior. Then the position of the individual motifs was recorded at the same time as the motif, again using rather simple codes. Although not perfect, this method provides

considerable information on the general layout of a design and the position of individual items within it.

General Ceramic Types

Although the ware definition as a primary means of ceramic analysis has been questioned above, it is impossible to avoid some use of it. Almost all preceding studies have used ware as a primary means of division within their analysis and, in the absence of any access to the original data, it is necessary to make the maximum use of what has been published. If they are precisely defined, it also remains useful to refer to very generalised ceramic types.

For the earlier part of the sequence, sites in north Mesopotamia will, with the partial exception of north Syria, be discussed with reference to the general Hassuna/Samarran tradition which has previously provided the focus of attention. The definitions of the major types of pottery which occur within this ceramic tradition were established by Lloyd and Safar at the excavation Tell Hassuna itself, and have remained in general use since.

It has been retained as a broad scheme here, particularly because much published information refers to this scheme rather than giving detailed fabric descriptions and to substitute a new one would be to increase the difficulty of using such information. In general, its broad categorical distinctions remain valid, although not always without a need for amplification or qualification.

As far as possible, these ceramics wares are related to fabric types. Unfortunately, as will be described below, the major influence in defining the wares seems, consciously or not, to have been decoration. We cannot assume, *a priori*, that these fabric types will correlate with other attributes of vessels. Some vessel functions, and with them probably some shapes, will be closely related to the fabric types—for instance, water storage vessels with coarse porous fabrics which will keep water cool through evaporation—but this will not always be the case. This necessity of distancing fabric types from form types is even more important with decoration as there are few decoration types which can be considered strictly functional. It must also be emphasised that in the fabric descriptions below that there is some degree of overlap between fabric types.

The major ceramic wares used in the following discussion can be described as follows. The detailed descriptions are taken in particular from the material examined by the writer from the North Jezira Survey Project in north Iraq and material in museums. Almost always they are sufficiently generalised, however, to correlate with other published accounts and to be applicable over wide geographical areas. When drawing up these descriptions, an attempt has been made to define groups which match, as closely as possible, the traditional ware groups, while attempting to maximise the differences between the groups in terms of fabric. Where these descriptions differ from those used in previous studies, the differences are noted.

Coarse ware

This is a rather general group of coarse fabrics which always makes up a significant proportion of Hassuna assemblages, particularly early in the sequence. It is lightly fired, usually rather soft and almost always with a thick grey or black core where the fabric has not been completely oxidised. It is almost invariably heavily tempered with vegetable material, which often seems to be chaff, and only occasionally is there any notable quantity of grit temper. The surface is usually roughly smoothed and sometimes lightly burnished.

Coarse wares of various types persist throughout the period under study, making up varying proportions of the assemblages. Where they form the minority of an assemblage dominated by fine decorated pottery, they have tended to be largely ignored in the past. Although they have recently received more attention, this has not yet been sufficient to allow their detailed analysis in the later periods of this study. The above description applies specifically to the Hassuna material.

Red and black polished ware

This is an unusual ware which, however, appears consistently in early Hassuna sites. These sherds are relatively fine, tempered with fine chaff or occasionally grit, and medium fired. They often have a grey or black core and a pink or orange fabric nearer the surface. The surface occurs in a range of colours, most commonly black or red, and is highly burnished, sometimes exhibiting a maze of fine cracks on the surface (Merpert, Munchaev and Bader 1976, 35, 57; Merpert and Munchaev 1973b, 9; Kirkbride 1972, 10).

Archaic Hassuna

This ware is typically low fired and is not heavily tempered. It may have light chaff tempering or low quantities of fine grit. The most common temper in the North Jezira Survey Project is sparse (in 41% of the cases) or medium (in 21% of the cases) quantities of white sand and grit which is likely to be in almost all cases the calcites which occur naturally in clay deposits in the area. The fabric is usually relatively well oxidised with no very marked black core. The surface is usually light in colour or has been slipped with a cream slip. It is frequently burnished to a high degree and is usually decorated with a red paint.

Standard Hassuna

This ware is medium fired and is markedly harder than Archaic Hassuna ware. The temper is generally grit, although chaff tempered examples are not unusual. The majority in the North Jezira Survey Project have medium quantities of white grits (44% of sherds) or a variety of other grits and sands (33%), including grey, black and red grits. The surfaces are smoothed or lightly burnished and may be slipped. The decoration associated with this ware is both painted and incised.

Samarran

Although Samarran style sherds have been consistently isolated as a component within the wider Hassuna assemblage, the formal basis for this differentiation from the Standard Hassuna ware has not been critically examined. This is especially important as it has often been argued to be an imported style (e.g. Mortensen 1970). Although Samarran pottery had been identified at Samarra (Herzfeld 1930) and noted elsewhere, its current definition was largely established by Lloyd and Safar. Their Standard Hassuna pottery is fine sand and grit tempered, buff to pink clay with a cream slip, sometimes with a pink or greenish tinge. The painted colours are red brown through to black. The incisions are fine lines cut with a sharp point (Lloyd and Safar 1945, 279). Their Samarran pottery is better tempered than the Hassuna; the clay colours seem identical and also include a few greenish examples; the paint range is not dissimilar, ranging from red-brown to black, although a chocolate brown is the most popular; it has a thick cream slip (Lloyd and Safar 1945, 281). These descriptions indicate that there was considerable similarity in the technology of the two groups. The only substantial differences seem to be in thickness of slip and the frequency of chocolate brown paint on Samarran sherds. There are a few jar forms which are specific to Samarran and Standard Hassuna (Lloyd and Safar 1945, 282) but most occur in both types. The type of incision is used as an important distinction, with Samarran incision composed of jabs and slashes. "The designs themselves constitute one of the biggest distinctions ... Samarran designs are admirably regular and tidy" (Lloyd and Safar 1945, 282).

There is a great danger of circularity in these distinctions. The fabrics and paint colours indicate a considerable degree of overlap. Samarran painted decoration is defined as being tidier and more complex than Standard Hassuna. Samarran incision is of slashes and jabs compared with fine lines. To a large extent these divisions might hold true but it cannot be demonstrated, on the published evidence, that they are two distinct wares rather than the finer and coarser ends of a continuous spectrum. In support of this it can be noted that "there are occasional doubtful examples which combine some characteristics of each group" (Lloyd and Safar 1945, 282). Although it is partly semantics, it is important to accept that we are dealing with Fine/Complex vs Medium/Simple wares or decoration rather than two unconnected types whose names have specific geographical connotations.

At Tell Shimshara, the other major site which claims to have both Standard Hassuna and Samarran wares, Mortensen has attempted to utilise the division made at Tell Hassuna. He treats fine Samarran ware as distinct from Standard wares. The Standard wares are divided into Hassuna and Samarran. Although he states (incorrectly, as is argued in the previous paragraph) that the Tell Hassuna division was on the basis of technology (Mortensen 1970, 62), he divides the standard wares into Hassuna and Samarran on the basis of decoration. There seems almost no difference between them in temper, firing, slip or paint colour (Mortensen 1970, 76). Hassuna Standard incised is defined as having fine linear incision,

Samarran incised as having jabs, dots and grooves (Mortensen 1970, 77). Samarran painted is neater and more complex than Hassuna:

“Compared with the compact design typical of the Samarran painted Wares, the designs of the Hassuna painted Standard Ware are simple and uncomplicated. Combinations of two or three motifs do not occur. The painting is careless and the lines and spaces uneven.” (Mortensen 1970, 79)

Again, this is a division based on types of decoration and fineness of finish rather than on two entirely different wares. The fine painted group does have some differences; apart from simply being higher quality it has thicker slips and black, purple brown and chocolate brown paint (Mortensen 1970, 63). This is not necessarily very distinct from the standard wares. The fabrics are similar and, as Mortensen notes (1970, 117), there are considerable overlaps in vessel forms. Again, if there is a distinction it may be of quality and complexity not geographical origin.

When Tell Hassuna and Tell Shimshara were excavated, the only major source of information for Samarran pottery was Samarra itself. The excavations at Tell es-Sawwan were too little published for them to have influenced Mortensen greatly. The publication of the Samarran cemetery is selective and inevitably tends to concentrate on the more complex pottery (Herzfeld 1930). There may also have been a bias towards complex vessels in the material buried in the graves. The assemblage from Tell es-Sawwan is more instructive. Fabrics ranged from greenish to orange-buff (Ippoliti 1970-71, 109). The absolute quantities are unclear but it seems certain that hard green fabrics are much more common than with the so-called Samarran ware at northern sites. Slips are very rare, unlike in the north where thick slips are a characteristic of the ‘Samarran’ ware. Paint colours range from dark green through to deep purple. This does correspond to some degree with northern paint types, particularly Tell Shimshara, but the match is not exact. Both fine linear and jabbed incisions are present, with no distinction between the fabrics associated with each (Ippoliti 1970-71, 119). Much of the decoration is complex but it includes very simple types (Ippoliti 1970-71, many sherds on Fig. Q and R and Fig. V, 2) which can be compared to ‘Hassuna’ sherds in the north. This description of the general range of ceramics at Tell es-Sawwan is in fact very similar in fabric to sherds from Samarra itself which I have examined (in the British Museum, Ashmolean and University of Edinburgh). If found in the north of Iraq, a sizable minority of the Tell es-Sawwan assemblage would be classified as Hassuna rather than Samarran.

It seems clear, therefore, that, as a strict division, the distinction between Hassuna and Samarran wares in the north of Iraq is now unjustified as it has been applied. There may indeed be a finer component of the pottery in the north but it does not seem justifiable to assign it to a distinct ware type which has specific cultural implications.

However, there is one fabric type which does seem to be very distinctive and consistent, and associated with a particular paint and set of motifs. This is high fired, often with a greenish tinge, and is heavily tempered with fine grits, usually of a dark colour. These grits give a characteristically speckled surface with a slightly rough, gritty feel to it. The paint is usually dark, brown, black or purple, and thickly applied. The motifs associated with this ware are those which might be considered most classically 'Samarran' (for instance stepped motifs). This type does seem to occur at Tell es-Sawwan in some quantity (Ippoliti 1970-71, 109) and to be similar to some of the Tell Shimshara and Tell Hassuna 'Samarran' sherds. It certainly occurs at Yarim Tepe (personal observation) and Khirbet Garsour. It may be suggested that, in the context of northern Iraq, the term Samarran be restricted to this type. To make the distinction between the traditional, very loose use of the term, this more precise ceramic type will usually be referred to as 'classic Samarran'. It may indeed be an import from further south but that would require further study. It certainly seems more useful to have a pottery type which can be precisely defined and makes a discrete group than one which is subjective and based on a selective mix of attributes.

In much of the remainder of this study, the 'wares' will be avoided as far as possible and ratios of decorative and, if possible, fabric types used instead. The decorative style, which has clear unifying features, will be referred to as Hassuna/Samarran and treated as one in inter-site comparisons in the frequency of decorative types and of motifs. There may be two discrete groups but they both seem to be used in the same cultural contexts and the motifs used on them come from the same general stylistic pool and may be suggested to function in the same stylistic context. Differences between them will need to be established on stylistic grounds.

Halaf Fine Ware

Halaf fine ware has traditionally been one of the easiest types of pottery to recognise. Its description has been influenced mainly by late Halaf pottery. However, its description still holds true, even for much of an early Halaf assemblage. The fabric is medium hard fired and generally completely oxidised to a buff/orange/pink range of colour. Inclusions are frequently invisible but, where they exist, tend to be sparse calcites; vegetable and grit temper are very rare. The surfaces of the sherds are well smoothed. The surface of painted sherds are often slipped. The paint used for decoration usually ranges from orange through brown and red to black. It is sometimes lustrous. The painted decoration, most commonly on the more complex examples multiple parallel lines or panels, is usually very fine and neat. These attributes of Halaf Fine Ware characterise its appearance over its entire range.

Analytical Methods

Several methods of analysis have been employed. To a very large extent these are determined by the quality of the primary data. As will be repeatedly stressed, this is extremely variable.

In most cases the nature of the sample is unknown. It may be a relatively small sample which, although random, may be heavily biased by coming from a very restricted, and possibly unrepresentative, range of contexts. More frequently, it is a sample which has been selected by unspecified criteria. In several cases assemblages from more than one stratum have been combined to enlarge the sample. Some of the sites, such as Baghouz, have not been excavated stratigraphically; others have poorly preserved stratigraphy so that it is not possible to prove that the entire assemblage is unmixed. Therefore, rather than using sophisticated statistical techniques which would give a very false sense of precision, simple summary statistics have been preferred. It seems a safer option to risk missing some of the more subtle points but give an assessment of the main points, which can then be accepted as a secure indication for future investigation, hopefully using better data.

It has been noted that detailed quantitative descriptions of fabrics are rare, which has limited the extent to which this variable, along with those of paint colour and surface treatment, can be used. Although the vessels shapes present at a site can be very informative, the samples are restricted by the size of the sherds. Where sufficient numbers are available, form is used as a variable but in several cases it seems preferable to be cautious in its use. The statistical investigations of form and fabric have, therefore, been kept very simple, mainly comparisons of percentage frequency tables. Given the approximate nature of some of these tables, this seems entirely adequate.

The analysis of motif frequencies is more complex. As body sherds can be easily used, even when there is no indication of the vessel form, and a single vessel may have several different motifs, the sample size is much greater. Equally the range of motifs is very large, too big to fit into simple tables. As decoration is the most amenable variable for stylistic examination, it also seems appropriate to use slightly more complex methods.

It is possible to argue, as LeBlanc and Watson (1973, 120) have done, that, even in a selective publication, the motifs represented make up an unbiased sample. The assumption is that the selection is made on the basis of skill in execution or degree of preservation rather than the motifs themselves. To an extent this is probably true but it should not be accepted uncritically. A selection may be biased to a particular style—as with the published Matarrah material which emphasises painted rather than incised decoration (Braidwood *et al* 1952)—which will inherently bias the range of motifs. It may emphasize particular forms on which specific motifs are found. It may include more motifs from the most skilled potters. All of these are potentially important. Additionally, and perhaps most importantly, a published selection may be what the excavator deems to be characteristic of the assemblage, perhaps underemphasising what, on a value judgement, is thought uncharacteristic.

Nonetheless, it is possible and necessary to treat the motif data more numerically. Again very simple statistics are probably preferable. Motifs were first separated into those occurring on the interior and those occurring on the exterior. This division were chosen because the distinction is clear, the resulting samples still relatively large and it seemed likely, on the

evidence of other sites, that there was a difference in motifs used (e.g. at Kharabeh Shattani, Campbell forthcoming a). Distinctions between bowls and jars or between specific forms have not been made in this analysis. On the level of comparison between sites in widely different areas and given the already often small and biased samples, it seems better to generalise at a relatively high level. However, the use of motifs on different vessel forms and the locations where they occur should be examined in future studies, using better data, as they can be expected to vary significantly. Because there is only a small quantity of incised pottery from most of the sites and, even where it is popular, it is frequently heavily under-represented in publication these analyses are biased in favour of painted decoration.

Two major approaches have been used. The first is to compare the 20 most common motifs at each site. Only motifs which occurred more than once at a site were included in these lists to avoid an overemphasis on unique motifs. Some motifs were grouped together in these lists if they were very similar (such as motifs 82 and 83); these are indicated in the tables of ranked motif frequencies for each site listed in appendix B. If fewer than 20 motifs occur more than once, there are fewer than 20 entries in the table for that site; this is especially common with interior motifs where the range of motifs is much smaller. Where necessary more than twenty motifs have been included in a list to avoid an arbitrary cut-off if several motifs occur the same number of times. Comparisons were made between sites on the basis of the number of motifs which occur in both lists. These are presented in tables B.73-74 and B.79-80 as the number of matches, in the upper right portion. The lower left portion presents this as a simple coefficient of dissimilarity calculated by dividing the number of matches by the maximum possible matches (i.e. the number of motifs at the site with fewer motifs). Thus the coefficient of dissimilarity between Matarrah and Tell es-Sawwan is

$$\frac{\text{Number of matches}}{\text{Possible matches}} = \frac{6}{15} = 0.4$$

This differs slightly from the more commonly used Jaccard Coefficient (Shennan 1988, 203-204; LeBlanc and Watson 1973) but, for this statistically very simple situation, the coefficient used here has the advantage of clarity and an intuitive meaning. The Jaccard Coefficient can also give more misleading results if there are marked differences in sample sizes. The maximum value of the simple coefficient used here is 1 which would mean that all the most common motifs at one site also occurred amongst the most common motifs at the other. A minimum value of 0 would mean that there were no motifs which were common at both sites.

Using such a simple coefficient does ignore a lot of potentially important information on the exact frequency at which different motifs occur. However, it should have the effect of blurring the true distinctions between sites rather than emphasising false ones. A more sophisticated measure of dissimilarity between the motifs used at two sites is the Robinson

Coefficient (Doran and Hodson 1975, 139). This totals the absolute differences between the percentage frequencies of motifs for the two sites being compared. The total is then subtracted from 200 to give a coefficient between 0 and 200, with 0 implying that there are no motifs in common, 200 meaning that each motif occurs at both sites with exactly the same frequency.

$$S_{R_{ij}} = 200 - \sum_{k=1}^a |P_{ik} - P_{jk}|$$

Where S_R is the Robinson Coefficient, P is the percentage of attribute k in assemblages i and j .

The dissimilarity matrix with Robinson Coefficients is shown in tables B.83-84. However, it must be realised that the probable biases in our samples could have a drastic effect on the exact coefficients. This table is, therefore, produced largely for demonstration purposes and cannot be relied on for detailed interpretation. If total samples from several sites are available, it is probably the most appropriate measure of dissimilarity and may be more useful in the future.

The second method of summarising motif usage is to divide motifs into different groups based primarily on their morphology. In most cases, the groups can be equated with primary motifs as proposed by Plog (1980). In all but two cases, the groups are determined by the overall form of the motif. The first exception is the cross-hatching group which includes cross-hatching used as a filler within another motif (e.g. motif 20) as well as its use to fill an area (e.g. motif 415). This is partly because it is difficult to draw an absolute line between the two and partly to allow the use of sherds which only have a small area of cross-hatching in an uncertain context. The second is the negative group which simply groups a potentially important decorative method. The members of each group are listed in tables B.75-76 and B.81-82 in appendix B.

It is entirely possible for a single motif to belong to more than one group. This happens in the case of motif 20 which is both in the group of triangle-based motifs and the group including cross-hatching. Similarly motif 265 is triangle-based, zig-zag based and includes cross-hatching. Many motifs do not fit into any of the groups. Therefore columns will not add to 100% and groups are not strictly equal. Each figure in the tables should be read as meaning that, for example, 5.7% of the motifs from level IIIB at Tell es-Sawwan are based on a stepped pattern. Because the criteria, inevitably, for the membership of the groups is dependent on the group concerned and because of the underlying poor standard of data, comparison between tables was done on a simple visual basis.

These methods of summarising the motifs which were used in the late Neolithic allows direct, quantitative comparisons to be made between sites. In the case of the Robinson

Coefficient, it quantifies the exact degree of similarity between two sites, within the limits of both the samples available and the chosen method of motif analysis. Together with the analyses of form and fabric, these form much of the basis of the following chronological discussions in the next two chapters. They also provide the basis for stylistic analyses developed in chapter 11.

Chapter 3

The Pre-Halaf Pottery Sequence

The discussion of the ceramic development in northern Mesopotamia will be divided into three parts. First the sequence up to the appearance of early Halaf pottery will be considered in this chapter, then the development of Halaf pottery in chapter 4 and, finally, an overall synthesis of the ceramic developments will be considered along with the absolute chronology in chapter 5.

Although the primary focus of this thesis and, in particular, the fieldwork carried out as part of it is centred on the developments in northern Iraq, it is impossible to restrict discussion to this area alone. The paucity of good sources of information is such that to ignore relevant data from outside this area would impose severe limitations. Even more importantly, as will be argued below, it is impossible to interpret the ceramic developments adequately or to achieve some understanding of the mechanisms behind them without a consideration of a wider area. The specific areas of concern are central Iraq and northern Syria, particularly the Balikh Valley. Where the information for these areas has been adequately discussed elsewhere, it will only be summarised here but this is not always possible.

Excavated sites are sparse and generally too widely distributed to allow us to suggest broad regional ceramic traditions with any certainty. Nonetheless, it is possible to suggest some geographical divisions of the sites and it is in this way that the discussion here will be structured. The division of north-western Iraq, central Iraq, north-eastern Iraq and north Syria has been adopted as a very rough arrangement of convenience. The number of sites within each of these areas is manageable in a detailed discussion. There is some evidence of a sequence available internally within each region; any smaller divisions would leave large gaps in the presumed sequence for some areas. To some extent these geographical divisions were chosen after an initial analysis as containing sites which had distinctive characteristics in common and specific differences from other areas. These distinctions will be discussed below. However, the divisions also tend to reflect the density of archaeological research in different areas. There are large gaps of unknown territory between most of the sites and,

especially, between the geographical divisions. Therefore, no suggestion will be made at this stage as to the precise validity of the geographical arrangement. In many ways it should be viewed as simply a convenient framework for the discussion of the ceramic sequence.

With a single exception, the evidence for each site will be discussed individually because of the small number of the sites and their wide geographical distribution which prohibits us assuming any *a priori* groupings. The single exception is the Proto-Hassuna section of north-western Iraq which has been attested from a considerable number of sites within a small geographical area.

NORTH-WESTERN IRAQ

In general, the eponymous site of Tell Hassuna has been used as the basis for a framework of the Hassuna sequence. However, for large parts of that sequence there is now much better, published material available from other sites. Thus, the discussion of the Hassuna ceramic sequence here will not centre on Tell Hassuna itself. The deficiencies of the sequence at Tell Hassuna are most notable for the first part, known only from the deepest level of that site. The ceramics from this level have now been discovered on a considerable number of sites over a wide area. It has been suggested that this pottery style, and an assumed distinctive accompanying culture group, be differentiated from the rest of the Hassuna sequence. Names suggested for this proposed new culture group have been Umm Dabaghiyah and Tell Sotto. For reasons which will be expanded on, it is considered here that this pottery style clearly and gradually merges into the rest of the Hassuna sequence. Although its name is relatively unimportant, to assign it a separate name over-emphasises the difference. Here it will be referred to as the Proto-Hassuna ceramic assemblage.

Proto-Hassuna

Despite the quantity of excavation on Proto-Hassuna sites in the last 25 years, our understanding of its development and definition is still in its infancy. Much of the material remains incompletely published and most of the extensively excavated sites occur in a relatively small proportion of its total range. There are undoubtedly considerable variations within the tradition. However, in addition to the general similarities between any coarse ware dominated assemblages, there are a considerable number of elements which are shared between sites which makes it possible to talk of a single ceramic assemblage. The most notable amongst these is a general similarity in the range of shapes, but especially in very specific forms such as the ogee pot and the husking tray, the range and positioning of painted motifs and the presence of relief decoration as a consistent feature at most sites.

The upper level at Ginnig, excavated as part of the North Jezira Project, provides a plausible antecedent to Proto-Hassuna sites (see the discussion in Campbell and Baird 1990). The ceramics at that site lack any sign of decoration or finer forms and exist only in a very basic range of shapes. However, the forms which do occur are similar to those of the better known Proto-Hassuna sites and, importantly, include a single example of the carination of an

ogee pot. This ceramic assemblage is combined with ground stone tools and chipped stone which can be linked in many respects with that from preceding Aceramic Neolithic sites.

Sites with assemblages of fully developed Proto-Hassuna pottery have been found over a relatively wide area of northern Iraq and north-eastern Syria. Sites are known to the south of the Jebel Sinjar (Umm Dabaghiyah [Kirkbride 1972 etc.], Tell Sotto [Bader 1989], Yarim Tepe I [Munchaev and Merpert 1981], Kültepe [Bader 1989] and, slightly to the east, Telul eth-Thalathat [Fukai, Hariuchi and Matsutani 1970; Fukai and Matsutani 1981], in the Tigris valley north of Mosul (Kharabeh Shattani [Baird, Campbell and Watkins forthcoming], Abu Dhahir [Ball 1987], Djigan [Li and Kawamata 1985]), on the east of the Tigris (Matarrah [Braidwood *et al* 1952]), to the north of the Jebel Sinjar (on various sites found by the North Jezira Project Survey) and in north-eastern Syria (Tell Kashkashok [Matsutani 1991] and a surveyed site near Tell Leilan [pers comm Harvey Weiss]). Le Mièrè has shown that the Proto-Hassuna also has close links with the pottery from Bouqras on the Euphrates (Le Mièrè 1983 and 1986).

Fabrics

At all sites the ceramic assemblage is dominated by coarse wares. This is best seen in the data from Tell Sotto (table B.2 in appendix B). The amount at Kültepe is slightly lower but still very high at well over 80%. Comparable quantified samples are also available from Kharabeh Shattani (McAdam forthcoming), Matarrah (Braidwood *et al* 1944: 9-10) and Tell Kashkashok (1991, 20). Unquantified samples from Umm Dabaghiyah (Kirkbride 1972, 8), Tell Hassuna Ia (Lloyd and Safar 1945, fig. 5) and Telul eth-Thalathat (Fukai, Horiuchi and Matsutani 1970; Fukai and Matsutani 1981) agree with this.

Along with these very coarse wares, finer sherds were also present. Again these can be quantified best at Tell Sotto and Kültepe but comparable sherds seem to be present at the other sites. Red and black polished wares appear in very small quantities at Tell Sotto (Merpert, Munchaev and Bader 1976, 57), Kültepe (Merpert, Munchaev and Bader 1981a, 8), Umm Dabaghiyah (Kirkbride 1972: 9), Telul eth-Thalathat (Fukai and Matsutani 1981, pl. 36, 7-15) and Tell Kashkashok (Matsutani 1991, 28-30). This ware has frequently been suggested as being imported. XRF trace element analysis of some of the sherds by Le Mièrè appears to support this theory in at least some instances (Le Mièrè and Picon 1987). Sherds of this type also occur rarely on survey sites in the North Jezira Project Survey as part of surface collections which include Proto-Hassuna pottery. It compares closely, on a side by side comparison in the case of the examples from Hassuna (Lloyd and Safar 1945, 278), with the earliest material from Sakçe Gözü and other north Syrian sites.

Vessel forms

A range of vessel forms are appear in Proto-Hassuna assemblages but the relative frequencies of these forms tend to vary at different sites. Most of the shape, however, are very simple and the variations can easily be accommodated within a hand made potting tradition with a

rather low level of technology. The main shapes include open platters, hemispherical bowls and, most recognisably, the 'ogee' jar form with its characteristic carination.

Decoration

A relatively small proportion of sherds is decorated. Applied and painted decoration are the most common. Incised decoration occurs but in only very small quantities.

Applied Decoration

Applied decoration is widely used on coarse vessels. The most elaborate examples come from Umm Dabaghiyah, Tell Sotto and Telul eth-Thalathat, although this is most probably a function of the large sample size from these sites. A wide range of motifs is present. Although they are very poorly quantified, the most frequent motifs are single or paired knobs (e.g. Bader 1989, fig. 62, 14-32), a strip of applied clay (e.g. Bader 1989, fig. 62, 6-8), 'lips' (e.g. Merpert, Munchaev and Bader 1976, fig. 35), 'horns' or 'eyebrows' (e.g. Bader 1989, fig. 63, 1-3) and stylized human and animal figures (e.g. Bader 1989, fig. 63, 34; Kirkbride 1972, pl. 3). This type of applied decoration occurs in all levels of these sites and at Matarrah, Lower Phase and Hassuna Ia.

It is clear from the sites to the north of the Jebel Sinjar that the percentages of relief decorated coarse varies very widely. It was possible to examine selected pottery, kept in Tell Afar Museum, from the Hassuna mound at Al-Botha (NJP 19D), excavated by the Iraqi Department of Antiquities, and pottery remaining at the site itself. Out of a total sample in excess of 1,500 sherds, almost all certainly Proto-Hassuna in date, there was only a single example of relief decoration. The other sherds in the assemblage, apart from a small number of Standard Hassuna and Archaic Hassuna sherds which came from the uppermost level, were highly comparable to other Proto-Hassuna assemblages. This lack of relief decoration may have been reflected in the small samples from other sites examined by surface survey in this area. However, a number of survey sites did possess much larger quantities of such decoration. This was clearest at NJP 68 where there were at least three separate, low-mounded areas with Proto-Hassuna ceramics. Mound A had a small quantity of relief decorated pottery while Mound B had much higher quantities.

It is therefore suggested that, at least to the north of the Jebel Sinjar, there were two different types of Proto-Hassuna ceramic assemblages possessing different quantities of relief decorated pottery. These sites occur within the same, rather small, area. It is conceivable that this differentiation is due to functional areas within a settlement; although the relief decoration could have little practical function, it might be associated with vessels used for a specific purpose or purposes for symbolic reasons. However, the sample from Al-Botha is from a large area and includes many examples of the fabrics and forms (mainly large jars) on which relief decoration is found elsewhere. Additionally the survey samples are taken from sites as a whole rather than specific areas and, therefore, would be expected to sample a wide

range of functional zones. Hence, it seems more likely that there is a chronological change within the Proto-Hassuna to the north of the Jebel Sinjar.

There is a surprising absence of relief decoration at Kharabeh Shattani (McAdam forthcoming). At Tell Kashkashok it is very rare with only 7 examples out of 6,626 sherds from level 3 (Matsutani 1991, 20 and 26). At the latter site, though, it is clear from unstratified examples that the potential to make the most complex examples did exist (Matsutani 1991, pl. 16). It might be suggested from the high frequency of painted decoration that Kharabeh Shattani may be at the very end of the Proto-Hassuna sequence. It must remain a very tentative proposal but it is possible that, in the areas other than the Sinjar plain, there was a marked decline in the frequency of relief decorated coarse ware in the latter part of the Proto-Hassuna phase.

Painted Decoration

Simple painted decoration occurs on finer vessels, predominantly a simple rim band on the interior and exterior but also more developed patterns at some sites. It is likely that sample size influences our perception of the sites to the south of the Jebel Sinjar having a greater variety of painted decoration. In general, the proportion with painted decoration is a very low percentage of the total number of sherds, but as a proportion of the finer wares is much higher. In many respects there is a clear similarity between the painted pottery in Proto-Hassuna assemblages and true Archaic Hassuna painted pottery (Kirkbride 1972, 15). The predominant paint colour in Proto-Hassuna assemblages is red to brown and it is frequently burnished and painted on a slip. It does differ from true Archaic Hassuna painted pottery, which is often much more highly burnished, but is relatively closely related.

Only about 1% of the pottery from Umm Dabaghiyah is painted (Le Mièrè 1986, 242). At Telul eth-Thalathat painted decoration is also extremely rare (Fukii and Matsutani 1981, 38-39). The percentage of painted sherds is slightly higher at Tell Kashkashok at 3.6% in level 3 (Matsutani 1991, 24) while at Kharabeh Shattani it is much higher at 12% of the assemblage (McAdam forthcoming). Furthermore the latter sample includes a few examples which resemble Archaic Hassuna sherds rather closely; they have a relatively fine fabric, a cream slipped exterior and red paint, lightly burnished. As the Kharabeh Shattani sample was all excavated from a well stratified deposit it seems unlikely that this painted pottery was intrusive and, together with the slightly higher percentage (3%) of incised pottery than might be expected in a Proto-Hassuna site, it may be an indication that the site is very late in the Proto-Hassuna ceramic phase. It may be more related to the transition to Archaic Hassuna which is discussed below in relation to Yarim Tepe I. It may also be connected to some extent with Bouqras for which Le Mièrè has suggested a date close to or just after the end of the Proto-Hassuna phase due to small quantities of Archaic Hassuna pottery in an assemblage which otherwise has close affinities with Umm Dabaghiyah in particular and the Proto-Hassuna assemblage in general (Le Mièrè 1986).

Discussion

It can be seen from the above descriptions that the Proto-Hassuna ceramic tradition has a certain number of elements which almost always occur in closely related forms at the sites discussed. There is, however, a wide variation in the detail at each site; the ranges of shapes vary; the presence and quantity of applied decoration is not consistent at all sites; painted decoration does not occur everywhere.

It is almost certain that chronological variation is one explanation for these differences. The Proto-Hassuna phase must have lasted a considerable period of time. Available absolute dates may suggest that from the Ginnig 'pre-Proto-Hassuna' stage through to the transition into the Archaic Hassuna phase at Yarim Tepe I may have lasted as long as 500 years (uncalibrated) or 750 years (calibrated). Chronological variation is particularly probable for the area to the north of the Jebel Sinjar.

However, there is reason to think that chronological change is not the only factor. The cluster of sites to the south of the Jebel Sinjar (Telul eth-Thalathat, Tell Sotto, Kültepe, Yarim Tepe I and Umm Dabaghiyah) are probably the most internally consistent of all the known Proto-Hassuna sites, even though they have also given us the greatest depths of deposit and one would suppose that chronological variation would have been more obvious. It is amongst the sites distant from this area that the variations are clearest. Furthermore, one can argue that applied decoration forms a significant proportion of decorated pottery throughout the Proto-Hassuna phase amongst the sites to the south of the Jebel Sinjar from the start of the known sequence at Umm Dabaghiyah and Tell Sotto to its end as seen in the basal levels of Yarim Tepe I, to be discussed below. In contrast, it seems that this may not have been the rule to the north of the Jebel Sinjar where it seems to have been lacking in at least one phase. This would suggest that, in detail, the development of the Proto-Hassuna tradition may have had quite significant spatial variations within a broadly similar framework.

Le Mièrre has pointed to the probability that significant amounts of pottery were being traded even at this stage, particularly amongst some of the fine wares. Certainly, other commodities were being exchanged between groups in at least small quantities (see chapter 8). Very tentatively, one might suggest that, although this would provide a mechanism through which different communities would be aware of developments in the ceramic traditions of an area, either pottery was not seen as a means of reinforcing a group identity or the groups within which it functioned were smaller than the total range in which Proto-Hassuna pottery occurs. This would lead to a possibility of relatively small scale groups. This will be discussed further in chapter 7.

The Yarim Tepe I Sequence

Unlike the Proto-Hassuna where a relatively large amount of work has been carried out in recent years, very few sites have added significantly to our knowledge of the later part of the

Hassuna sequence. Tell Hassuna itself still provides much of our basic sequence. The only major advance before the very end of the sequence comes from the Russian excavations at Yarim Tepe I. Fortunately the material from the lower levels has been published, albeit in Russian (Munchaev and Merpert 1981), and some detailed stratigraphic information is available (Bashilov *et al* 1980a). Therefore, the transition to Archaic Hassuna and the developments within the Hassuna sequence until the appearance of 'Samarran' elements will be discussed first for Yarim Tepe I and then for Tell Hassuna.

The earliest levels of Yarim Tepe I contain material which is clearly within the Proto-Hassuna ceramic tradition. Although the site is relatively extensively published, there is some difficulty in using it. The sample sizes and level of detail are much higher in the publication in Russian (Munchaev and Merpert 1981). However, the stratigraphic detail published in Bashilov *et al* (1980a) is clearly greater and, therefore, their analysis of the pottery appears more reliable. Thus, it is a choice between sample size and stratigraphic reliability. Both sources have been considered in this thesis and, in general, the greater sample sizes of Munchaev and Merpert (1981) have been quoted where there seems to be no significant difference between them and Bashilov *et al* (1980a).

The excavators consider the basal levels to be successive to those found at Tell Sotto. In many details which have been used above to define a Proto-Hassuna assemblage they are indeed very similar. There are large quantities of coarse wares, a high percentage of ogee form pots (43.6% in basal pits, 21.5% in level 12 and 12.5% in level 11), applied decoration etc. However, even in the deepest levels there seems to be a higher percentage of painted decoration than at Tell Sotto and Umm Dabaghiyah; about 13% in the basal pits, 17% in level 12 and 23% in level 11. As will be discussed, the Yarim Tepe I sequence seems to develop with no clear break into the later Hassuna ceramic sequence and it seems highly probable that these increased quantities in decorated pottery, specifically painted, are a characteristic of the final part of the Proto-Hassuna sequence. This would lend support to the suggestion made above that Kharabeh Shattani Proto-Hassuna is very late in that period.

As the lower part of the Yarim Tepe I stratigraphy also seems to cover the transition to Archaic Hassuna, this sequence is crucial in a study of the development of the Hassuna chronology. The tables presented here (tables B.3-B.6 in appendix B) are compiled from data in Munchaev and Merpert (1981) and provide information on levels 8 to 12 and on material from a series of pits cut into natural below level 12. The vessel types and motif classification are taken unchanged from that source as it was felt to fit them to a more unified system would serve no useful purpose and would abstract the data still further (see Munchaev and Merpert 1981, fig. 19-22).

Although the sample size varies, a number of valid observations can be made. The number of ogee form jars (Type I) drops steadily, with the most marked drop between levels 11 and 10 from 12.5% to 4.5%. Another characteristic Proto-Hassuna form, a very shallow dish (Type III var.1), occurs rarely but clearly also declines through time and does not occur

in level 8. After level 10 Type V var.2a (husking trays with ridges on the base) replaces var.2b (husking tray with stab marks in the base). This association of husking trays with stab marks and Proto-Hassuna assemblages occurs elsewhere but is not a simple or absolute division (e.g. Kirkbride 1972, pl. XVa). Deep bowls (Type IV) predominate from levels 12 to 9 then drop suddenly in level 8 where there is a corresponding rise in the number of shallower bowls. It is not the previously common shallow bowl types (type III var.1-3) which increase but two new types; type III var.4 with a slightly constricted rim and type III var.5 with an out-turned lip suddenly leap to prominence. The latter bowl type may well be related to the Type IV deep bowl forms which also often have an out-turned lip.

The decoration of the vessels also changes. The quantity of painted decoration increases considerably through time. Although precise figures are somewhat doubtful, painted decoration seems to increase from approximately 13% in the basal pits to 37% in level 10 and 33% in level 9. The apparent figure of 63% in level 8 seems remarkably high and may be a sampling error. However, it does seem clear that an assemblage with a relatively small quantity of decoration changes through time to one in which painted decoration is commonplace. All of this painted pottery appears to be of the Archaic Hassuna variety (Munchaev and Merpert 1981, 274). In addition to the general variation, specific changes in motif usage can be seen.

On Type III bowls the frequency of decoration increases through time, particularly in level 9 but also, to an extent, in level 8 (table B.6). Although a simple rim band on the interior or exterior rim is the most common motif throughout (Yarim Tepe motifs 1 and 2), its frequency changes markedly. In levels 12 to 10, over 85% of all bowls with decoration had motifs of this pattern, but in levels 9 and 8 the corresponding figures are 67% and 58% respectively. This change is a direct result of the increase in diversity of motifs, including the use of more complex motifs such as Yarim Tepe motifs 5 to 8. Motifs 7 and 8 are particularly worthy of note as examples of the multiple line, interlocking zig-zags which are a characteristic component of the later Hassuna/Samarra decorative repertoire.

Different changes are visible in the decoration of Type IV deep bowls (table B.5). Applied decoration, Yarim Tepe motifs 22 to 25, appear only in levels 11 and 12. The increase in frequency of decoration is less clear than with bowls; an increase may start in level 10, followed by a decline in 9 and then, clearly, a great increase in level 8 but the frequencies seen for levels 9 and 10 could have been affected by sample size. It is not simply that there was an increase in the frequency of decoration on Type IV vessels in level 8; the motifs used change dramatically as well, starting in level 9. In levels 10-12 between 75% and 89% of all decoration was in the form of simple rim bands (motifs 2 and 3) but in levels 9 and 8 this falls to 5.5% and 29% respectively. Clearly this is a major change in decorative style. It is worth noting that, although its full effect is not seen until later, the diversity in style associated with this change may in fact start in level 10 where 15 different painted

decorative patterns are used as compared to 8 in level 11 and 9 in level 12. In level 10, too, there is no use of applied decoration.

The changes outlined above are clearly linked to other factors as well, principally the increasing prominence of finer fabrics of the Archaic Hassuna type, but they do indicate the significant trends. The pits dug into natural and levels 11 and 12 clearly belong in the general tradition of the Proto-Hassuna, although of a slightly atypical and probably late variety. Levels 8 and 9 seem clearly dominated by Archaic Hassuna pottery, although this will be discussed further below. The pottery from level 10, however, has the characteristics of a true transitional assemblage. Some of the main changes in the assemblage occur between levels 11 and 10, some between levels 10 and 9. In the case of the Type IV deep bowls the changes can be seen in progress in level 10 itself. If this were simply the result of fairly random mixing between layers, one would expect the changes to happen at about the same time. This is not the case and, almost certainly, must reflect a period in which pottery types intermediate between Proto-Hassuna and Archaic Hassuna were in use. On this basis, there seems further reason to suggest that Archaic Hassuna pottery evolved directly out of Proto-Hassuna pottery.

Standard Hassuna

While this information effectively describes the transition at this site from an assemblage dominated by Proto-Hassuna pottery to Archaic Hassuna, such good data is not available on the later stages of the Hassuna pottery sequence from Yarim Tepe I. In part this is simply due to differential publication; the later levels are only published in preliminary reports of specific seasons. It is also due to the greater disturbance of the upper levels making the retrieval of good quality data more problematic. However, one suspects that quantitative data was also not recorded as systematically in the early years of the excavations at Yarim Tepe I. This is mirrored at Yarim Tepe II where much more detailed information is available for the lower levels, excavated more recently, than for the upper levels. Nonetheless there is a certain amount of valuable information available. Very few vessels are published and most of the facts are in the form of generalised references. Little can be said about vessel form but rather more about the general proportions of wares and decorative types.

The excavators of Yarim Tepe suggest that Archaic Hassuna painted pottery is present from level 11 and probably from level 12 (Merpert, Munchaev and Bader 1976, 35) with little change in technique. This is largely supported by information that the Proto-Hassuna vessels with painted decoration are closely linked to Archaic painted vessels. Therefore, it should be remembered that, although a Proto-Hassuna phase is distinguished from an Archaic Hassuna painted phase, the actual technique of painted decoration is an evolution rather than an innovation. Archaic painted occurs in quantity until level 7 (Merpert, Munchaev and Bader 1976, 35). Alongside the painted pottery, there is a small amount of incision of an unknown ware (Merpert and Munchaev 1973b, 8). In level 7 a small quantity

of Standard Hassuna pottery appears (Merpert, Munchaev and Bader 1976, 34); this presumably refers to a greater use of more highly fired and grit tempered wares. The excavators state that there is "direct evidence for continuity" between Archaic and Standard Hassuna pottery in level 7 (Merpert, Munchaev and Bader 1981a, 24) although further details are lacking. In level 6 Archaic pottery still occurs in small amounts (Merpert and Munchaev 1973b, 8) but the large majority of the pottery is standard Hassuna, with a particular emphasis on incised decoration (Merpert and Munchaev 1973a, 103). From level 5 the Standard Hassuna ware predominates, including painted, painted-and-incised and, in greatest numbers, incised decoration. It is not clear when Samarran (of an unstated definition) starts appearing. It seems most likely to be in level 6 (Merpert and Munchaev 1973a, 103; Merpert, Munchaev and Bader 1981a, 25) although early reports state that it did not start until level 5 (Merpert and Munchaev 1969, 128). The quantity of Samarran pottery certainly seems to have increased in the later levels (Merpert and Munchaev 1969, 128). Unfortunately there is essentially no information from level 4 and later, probably due to the disturbance caused by erosion and later pits and graves.

Therefore, the Hassuna sequence at Yarim Tepe I can be summarised as follows. The basal pits, levels 12 and 11 appear to fit best within the Proto-Hassuna tradition. In level 10 Archaic Hassuna painted pottery appears in a transitional context and begins to increase with time. Levels 9 and 8 are dominated by painted Archaic Hassuna pottery although there are also smaller quantities of incised sherds. In level 7 some grit tempered Standard Hassuna occurs alongside Archaic Hassuna but the relative proportions are unclear. Painted Archaic Hassuna pottery continues in smaller quantities into level 6 but the assemblage by then is dominated by incised, Standard Hassuna pottery. This continues in level 5. Although the decorated portion of the assemblage is clearly dominated by incised decoration, painted and a combination of painted and incised also occur. More complex painted designs of the Samarran type increase in quantity, probably from level 6 onwards.

Tell Hassuna

Tell Hassuna was critical in the initial understanding of the cultural sequence in northern Iraq and, although it is over forty years since the site was published, it still provides the best information available for some parts of the ceramic sequence. Fortunately the detail and quantitative information makes the site report exceptional for its date. The sequence does not present great problems in reconciling it with later discoveries. Level Ia at Hassuna clearly represents part of the Proto-Hassuna phase seen elsewhere. It does not, however, provide a major contribution to our knowledge of the phase and will not be discussed in detail here. Level Ib-VII are of considerable interest and will be discussed here.

The chart of pottery types present at Hassuna (Lloyd and Safar 1945, fig. 5) provides much of the basic data which is used in this discussion and, where not otherwise acknowledged, is the source of statistics. There are criticisms which could be made of the

data in this table. The statistics are only from the 1944 season of excavation. They do not cover undecorated pottery to any significant extent and there is no indication whether all decorated sherds were included in it; for instance, small body sherds might not have been included. Nevertheless, it is the only quantitative information which we have for this type of late Hassuna assemblage and, although one may question whether the exact figures are accurate, there seems no doubt that the trends depicted in it are broadly correct.

Fabrics and general decoration types

In general, levels Ib, Ic and II have been interpreted as being Archaic Hassuna and levels III to VI as characterised by Standard Hassuna. When the figures in the Tell Hassuna report are retabulated, it becomes clear that, on the basis of the development of wares and decoration at least, the differentiation is more complex (fig. 3.1). Painted Archaic Hassuna is very clearly in a minority as a percentage of the total number of decorated sherds; it rises to a maximum of 12.14% of the total decorated sherds in level Ic. It is rather the case that incised Standard Hassuna pottery is dominant from level Ib onwards. In fact, between level Ib and VI, incised Standard Hassuna is always in the majority; only in level VI does it appear to drop below 50% and in other levels ranges from 69% to 86% of the decorated pottery. It is against this relatively unchanging continuum that all the other changes at Hassuna must be observed.

All this incised pottery is recorded as being produced in the standard ware. If this is so, it implies that the technical ability to produce standard ware fabric was present from level Ib and was deliberately selected for incised pottery in levels Ib and Ic while a different technique was used for vessels which were to be painted.

As stated above, painted Archaic Hassuna pottery is the other major decorated pottery style in levels Ib, Ic and II. However, it appears in relatively much smaller quantities than at Yarim Tepe I, levels 9-8. The presence of large quantities of pottery manufactured and decorated in the incised Standard Hassuna style, which do not occur at Yarim Tepe I until level 7, indicates that levels Ib-II at Tell Hassuna are most likely to represent only the final part of the *floruit* of Archaic Hassuna pottery. It should be noted that this solution poses an awkward problem of its own. It would suggest that there was a phase in which painted Archaic Hassuna pottery existed side-by-side with incised Standard Hassuna pottery but without painted Standard present, a phase which we would then have to argue was missing at Yarim Tepe I. Therefore, although on the present information it seems preferable to accept the probability that there are two chronological phases, it must be recognised that the factor of regional variation might be present.

Apart from five sherds in level Ic, which could have arrived in that stratum by many means other than contemporary deposition with the other pottery, painted Standard Hassuna pottery appears in quantity in level II. In this level it is much less common than Archaic painted but in the next stratum the positions are reversed and in succeeding strata no more Archaic Hassuna pottery was found. A certain amount of overlap can be explained by

redeposition, animal burrows and the continued use of vessels after their manufacture but there does seem to a period, as at Yarim Tepe I, in which Standard painted and Archaic painted pottery were used, although not necessarily made, together.

Standard Hassuna incised and painted pottery appears in the same strata as painted, although in small quantities. However, from levels IV to VI it is roughly as common as the painted variety.

As suggested in chapter 2, the pottery described as Samarran cannot be separated reliably from Standard Hassuna painted. Nevertheless, there is a portion which is a distinct group. This can be loosely termed 'classic Samarran' and in fabric, shape and decoration seems to form a unified group. The frequency of this classic Samarran may be reflected in the statistics given for general 'Samarran' by Lloyd and Safar. Samarran painted and incised pottery comprises a consistent but negligible proportion of the Samarran pottery at Hassuna and will be taken together with the painted Samarran pottery. This appears in quantity in level III and seems to grow in frequency so that in level IV it makes up 15% of the assemblage. Thus, Samarran seems to start very shortly after Standard painted Hassuna pottery, as at Yarim Tepe I. It is worth noting that this corresponds to the increase in Standard incised and painted and that the two may not be unassociated, including as they do the vessels with the most complex decoration.

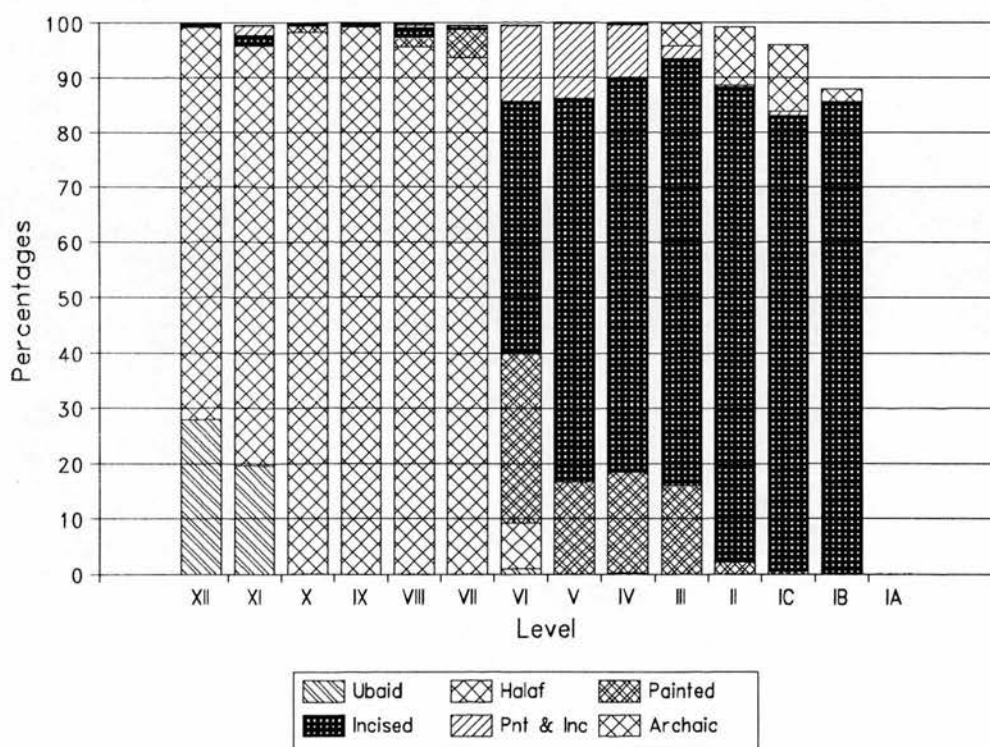


Fig. 3.1 Distribution of ware types by level at Tell Hassuna. After Lloyd and Safar 1945, fig. 5. See also table B.7

These general distributions of wares suggest that the sequences from Yarim Tepe I and Hassuna do have some significant differences which can be explained by regional differences, sample sizes or chronological phases present at one site and not at the other. However, there are some general points of agreement and the two sequences can be provisionally combined into one which, although it misses some of the possibilities of finer division indicated above, does include the main chronological divisions seen at either site. The suggested phasing is of Proto-Hassuna, Hassuna I, in which Archaic painted pottery is dominant, and Hassuna II, in which Standard Incised pottery is the most important decorative technique. It seems likely that there is some sort of transition between Hassuna I and Hassuna II.

Vessel form

Although no detailed classification of vessel shapes is included in the original Tell Hassuna report, it is possible to gain some indication of some of the general changes in shape through the sequence. All of the illustrated sherds, and a small number which were seen in various museums, were classified according to the system detailed in chapter 2. This is undoubtedly a biased selection. It is certainly likely to concentrate to a considerable extent on the more extensively decorated examples, particularly the 'Samaritan' ones. Given the predominance of incised pottery in all the Hassuna levels, it is also clear that this type is severely under-represented in the illustrations; this is particularly important as incision is most common on jars and one must presume that a correlated under-representation of jar forms will also exist. Nevertheless, it is useful as a rough indication of some developments.

The illustrated examples from levels II and III suggest an assemblage dominated by round-sided bowls (shapes A3 and A5) and, presumably, by a variety of unillustrated jar forms. Level IV has a greater variety of shapes but, apart from the appearance of pots of form B1, there seems to be no clear break. However, there appears to be a significant change in the next level with a marked rise of bowls with carinated and S-curve profiles. Both levels IV and V have relatively large samples for which the form is known (83 and 72 samples respectively). The carinated and S-curved forms (A1, A4, A7, A8 and A10) make up 3.7% of the total in level III, 4.51% in level IV but rise abruptly to 19.45% in level V. The sample from level VI is too low to be sure whether this increase is maintained. Although the evidence is scanty, this increase in carinated and S-curve bowls seems to be associated with growing quantities of painted pottery.

Khirbet Garsour (figs. 3.3-3.8)

For the detailed summary of this site and its stratigraphy see appendix A. The fine-ware ceramic assemblage cannot be sub-divided and must be treated as a single corpus, even though it is possible that there are developments within it. There is no reason to conclude that any such developments were significant and some indication that they were not, at least on the scale of study in this discussion.

The ceramics are predominantly decorated by painting, although both incised and painted and incised occur as well. Almost all would traditionally be classed as Samarran, probably with a Standard Hassuna component. However, it seems clear that at this site, at least, there is little sub-division within the assemblage. There are some 'classic' Samarran sherds (high fired, green fabric, purple or black paint with step pattern motifs) which can justifiably be given that label. Apart from this, no division can be made on the grounds of fabric, surface finish or paint. Only the quality and complexity of the decoration could be used, something which would be highly artificial at best and, at worst, misleading.

The range of motifs commonly used has close parallels elsewhere. A considerable number of the most common exterior motifs are shared with other Hassuna/Samarran sites (tables B.71-B.76). A notable exception is Matarrah which, on the published pottery, seems markedly dissimilar. It seems significant that there is such a degree of overlap with both Tell Hassuna and the early Halaf levels of Tell Sabi Abyad. Both these sites are generally rather distinctive but are more closely related to Khirbet Garsour than any others. A persuasive interpretation for this would be that the Khirbet Garsour ceramics are stylistically related to both these sites and represent an intermediate phase.

The general exterior motif types provide fewer very close parallels with Hassuna/Samarran northern sites (table B.75; fig. B.1). Chevrons are common as at Tell Hassuna, Tell Shimshara and, to a lesser extent, Matarrah. However, the similarities are much closer in general motifs with Tell Sabi Abyad and NJP 72, with low quantities of zig-zags and multiple line motifs. The relatively low quantities of general cross-hatching at Khirbet Garsour, compared with these sites, is largely attributable to the dominance of horizontal cross-hatching (motifs 506, 443 and 373) at Sabi Abyad and NJP 72. It is very significant, however, that these characteristic motifs of the earliest Halaf do occur regularly at Khirbet Garsour, albeit in small numbers. They do not occur at any other Hassuna/Samarran site in any quantity.

The small numbers of interior motifs at some sites make general conclusions difficult but again there is a general overlap with other sites with the exception of Matarrah (tables B.73 and B.76). Once again the degree of similarity to Tell Sabi Abyad, and to the very small early Halaf sample from NJP 72, is significant. This is especially important as all three sites use swags (motif 44) as a common interior rim motif. This is later a characteristic Halaf interior rim motif and does not occur with any frequency at any other Hassuna/Samarra site.

These links both to the earliest Halaf sites and more generally, and numerically overwhelmingly, to Hassuna/Samarran sites might be explicable if Khirbet Garsour were thought of as having a mixed Hassuna/Samarran and early Halaf assemblage. However, this does not appear to be the case. Most of the pottery is clearly within the general Hassuna/Samarran tradition but has local peculiarities. More importantly the specifically Halaf motifs which occur, mainly horizontal cross-hatching and motif 44 on the interior rim, do not always occur in the manner of early Halaf ceramics as we know them from other sites.

In some cases they are clearly combined with typical Hassuna/Samarran motifs. Thus Khirbet Garsour genuinely seems to possess an assemblage which combines elements of both styles.

A further, very specific link with early Halaf sites is of interest. The classic Hassuna husking tray occurs in the North Jezira Project survey area on almost all Hassuna sites. Its fabric is coarse, heavily vegetable tempered, low fired and with a prominent grey or black core. In contrast, the morphologically identical husking trays which occur at Khirbet Garsour and at early Halaf sites (specifically NJP 72) are much higher fired with little or no grey core. This seems an instance of a different technology being used to produce the same item.

Summary and conclusions

The existing terminology to describe the phasing of the Hassuna in north Iraq becomes very cumbersome when applied to the proposed sequence outlined above. It refers to phases by the prominent ware types. However, the proposed ceramic phases are considerably more complex. Therefore, a new nomenclature is now proposed. It is important to note that, although these are described as phases, strictly speaking they describe different ceramic assemblages which have an inferred chronological sequence. In some cases these assemblages may have existed contemporaneously in the same or different regions.

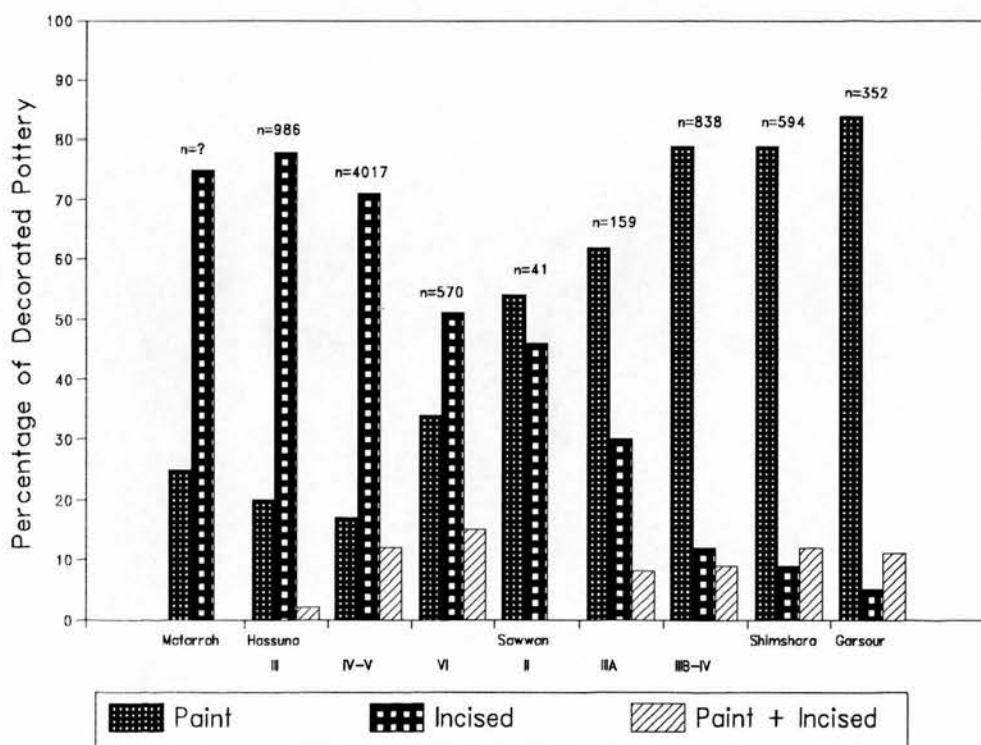


Fig. 3.2 Frequencies of different types of decoration at Hassuna/Samarran sites

The definition of Proto-Hassuna is still adequate and has gained considerable currency; it would simply add to the confusion to replace it. The assemblage in which Archaic Hassuna painted pottery is the dominant decorative type will be referred to as the Hassuna I. It is best represented in levels 8 and 9 at Yarim Tepe I. The assemblage in which incised Standard Hassuna pottery dominates will become Hassuna II. This covers all of the levels at Tell Hassuna after level Ia until the appearance of large quantities of Halaf pottery in level VII. The upper phase at Matarrah also belongs to this phase. The final assemblage, in which painted Standard Hassuna and/or Samarran pottery dominates, will become Hassuna III and, in north Iraq is represented by Khirbet Garsour and Tell Shimshara. As will be suggested in the next section, this last phase can be equated with the Samarran phase which appears in central Iraq. To some degree, these assemblages are chronologically successive but the probability must be high of both overlaps and intermediate transitional phases being detected in future work.

CENTRAL IRAQ SEQUENCE

Tell es-Sawwan

Tell es-Sawwan was excavated in ten seasons between 1964 and 1983 by the Directorate of Antiquities of Iraq, with two subsequent seasons of excavation by a French team directed by Catherine Breniquet in 1988 and 1989. The very extensive Iraqi excavations provide our major source of information on the pottery. Unfortunately the excavations were carried out under the directorship of a number of individuals, apparently to a variety of standards. The publication is also very variable. Preliminary reports of any length have only been produced for the early seasons but the fact that they are written by several individuals with differing standards and aims makes their use difficult. In some cases, the security of contexts is not always clear; this is particularly the case with the potentially important occurrences of small quantities of Halaf pottery (Wahida 1967, 172-174). Therefore, there are no good statistics available for the sequence for all the levels. Nevertheless, some of the reports include good statistics for specific levels and specific attributes of the ceramic sequence. Where available the best and most complete statistics have been used.

Although the site is divided into five main levels, with the third of them sub-divided into two, there are clearly two main phases in the ceramic development.

The first of these is made up of the pottery from levels I and II. Although little material has been published its general characteristics are clear, at least from the early seasons of excavation (Ippoliti 1970-71; El-Wailly and Abu Al-Soof 1965; Al'Adami 1968). Ippoliti makes it clear that almost all the pottery was made up of coarse wares in both these levels (1970-71, 139). There are a few sherds made and decorated in the Samarran style characteristic of the later levels. However, their extreme scarcity, their close similarity to the later pottery and the fact that they seem technologically completely alien to the rest of the assemblage suggests that they are most probably intrusive from the later levels.

There is little information on the vessel shapes present in levels I and II. There are certainly some general parallels with early ceramic assemblages elsewhere in Mesopotamia and specifically, in some regards, with Proto-Hassuna pottery in north Iraq. The published material does lack any of the features which might be considered specific to the Proto-Hassuna such as ogee vessels and relief decoration. However, Breniquet has noted personal communications from Abu al-Soof and Bader which suggest that more specific parallels may have been present (Breniquet 1991b, 83). There are references to a few sherds which resemble Archaic Hassuna painted pottery (Ippoliti 1970-71, 122; El-Wailly 1963, 19) in levels I, II and III. This might fit relatively well into an early ceramic assemblage broadly parallel to Proto-Hassuna or Archaic Hassuna.

A further argument in equating the assemblage from the lower levels of Tell es-Sawwan with Proto-Hassuna is provided by the large number of fine stone vessels found in the burials in level I. In shape, material and manufacture these seem very closely related to those from Umm Dabaghiyah (Kirkbride 1973, 4, pl. 2) and Kültepe (Bader 1989, fig. 82, 6-8) as well as Bouqras (see Roodenberg 1986, 147, pls 73-82). More distant specific parallels to these occur at Tell Assouad (Cauvin 1972, figs 9-11) and Damishliyya (Akkermans 1988b, pl. 10). It seems far more plausible that the material from the graves at Tell es-Sawwan belongs to this early sixth millennium stoneware style than that this style persisted to the end of that millennium at Tell es-Sawwan alone.

In complete contrast to this basically coarse and minimally decorated ceramic assemblage from levels I and II, level IIIA sees a very abrupt change. The assemblage is dominated by medium and fine wares with a prominent component of painted decorated pottery. It seems clear that there was a break in the pottery which seems so dramatic that it must cast some doubt on any arguments for architectural continuity and specifically on whether the ditch round the settlement has been correctly interpreted as starting the level I (El-Wailly and Abu es-Soof 1965, 24). This is confirmed by Breniquet's study which concludes that the construction of the ditch was associated with level III (Breniquet 1991b).

There is a good statistical sample of the main wares and decorative types present in levels IIIA to V published from the third and fourth seasons (Wahida 1967 and Al-Soof 1968). Although level V seems slightly different, possibly because of the much smaller sample, there is a high degree of continuity in these levels. Around 60% of the pottery is from plain fine and medium wares and approximately 20% is painted, although this may rise in level V. Incised and painted and incised pottery is very rare; between 2% and 3% and between 1% and 2% respectively. It seems likely that the fabrics used in all these groups are broadly similar. Coarser wares seem to make up only 10-20% of the assemblages.

The only quantitative information available for vessel form and decoration is from Ippoliti's study of the first season's pottery and much of it must be taken from the illustrated material so it cannot be considered an unbiased or complete sample. The general vessel types seem fairly constant with 50% jars, 20-30% bowls and 20% pots in levels IIIB-

V. Level IIIA seems different with a much higher proportion of jars and a much lower proportion of bowls. The very small samples make comparisons in specific forms unhelpful. There is considerable variation but, as there is no clear chronological development, this may be random.

The available sample of decorative motifs is much more helpful. In general, it should be stressed that in all the later levels the large majority of the pottery is very similar and all fits into the broad Samarran group. However, in a variety of areas, there seem to be specific variations separating levels IIIA/B from levels IV/V (tables B.20-B.21). Multiple line zig-zags and, especially, cross-hatching seem typically early (11 occurrences are early and 3 are late) as do chevrons (10-14% of levels IIIA/B motifs include chevrons compared to only 5-7% in levels IV/V). In contrast ripples, zig-zags framed in cross-hatching and motif 544/558 are all late. As can be seen in table B.75 and fig. B.1, multiple zig-zags and cross-hatching and chevrons are typically very common at northern Hassuna II sites and it might be suggested that levels IIIA/B are more closely linked in decorative types to the north than are levels IV/V.

The slightly closer links in specific motifs with northern sites in level III, together with the possibly greater significance of incised decoration in the early part of the Tell es-Sawwan sequence, may be significant. Although it is not demonstrable, it is possible that the Samarran assemblage may have evolved out of something much more similar to the northern Hassuna II type of assemblage. If this were the case, we would have to envisage an evolution in the north towards Halaf ceramics and an evolution in the south through full Samarran ceramics to the Choga Mami Transitional and its problematic relationship with the Ubaid farther south.

Baghouz

Baghouz was excavated without good stratigraphic control or recording. It is probable that the published assemblage is from a conflation of several levels, potentially spanning a considerable period of time. This difficulty is compounded by the very peculiar publication. Part of the ceramic assemblage was published by Braidwood *et al* (1944) from a small collection of sherds and in the form of drawings made from photographs. The rest was published by the excavator, du Mesnil du Buisson, as a collection of photographs and drawings, some of which are extremely sketchy (du Mesnil du Buisson 1948). The result is that many sherds are published two or three times (compare Braidwood *et al* 1944, pl. IV, 3 and VI, 5 with Mesnil du Buisson 1948, pl. XXII, 1). Sometimes there are significant differences between the illustrations and, on occasions, it is impossible to distinguish between the same sherd being published twice and two very similar sherds being published separately. Although all the doubtful and probable duplicate sherds have been eliminated before this study started, this must introduce some inaccuracies, in addition to the problems of using a biased, partial sample of the complete assemblage.

Although the assemblage is potentially a mix of several phases, there is no indication that it is severely mixed. All the diagnostic sherds are decorated in the Samarran style. To some extent this is confirmed by the fabric descriptions given by Braidwood *et al* (1944). The general characteristics of the assemblage are clear and are unlikely to be affected by the bias of selection and presentation beyond the almost complete absence of undecorated fine and coarse ware ceramics. The assemblage is dominated by painted decoration but contains small quantities of incised and painted and incised sherds, most at the Samarran end of the Hassuna-Samarran spectrum. On more detailed comparisons, clear general patterns exist which may be accepted as having validity, subject to the inevitable reservations. Some confirmation of this validity may be taken from the fact that the conclusions generally confirmed what is, *a priori*, most likely.

The range and frequency of vessel forms is generally similar to that of Tell es-Sawwan (tables B.26-B.29 and B.71-B.76). Bowls mainly have sinuously curving bodies and slightly flared rims. They may be rather more upright than those at Tell es-Sawwan. There is a significant component of more sharply carinated bowls (types A7 and A8). Form B1 pots dominate the pots, with 'beaker' forms included in this type. Jars most commonly have vertical necks.

The range of motifs is wide but most are paralleled at Tell es-Sawwan. In interior motifs, both sites are typified by high proportions of triangular based motifs (21.7% at Baghouz, 16-30% at Tell es-Sawwan), significant levels of step patterns (c. 5% at both sites) and relatively high numbers of 'dancing ladies' compared to other sites (15% at Baghouz and 6-15% at Tell es-Sawwan). The general types of exterior motifs are also similar at both sites with relatively high proportions of zig-zags (9.5-15% at both) and step patterns (6-8%) but other general motifs types are slightly divergent. The most common specific exterior motifs, however, show more similarity between the two sites (tables B.73-B.74). There are nine out of a total possible of 20 motifs which occur in the list of the 20 most common exterior motifs at both sites; compared to other Hassuna/Samarran sites this is a high degree of overlap. Nonetheless, the high quantity of cross-hatching, bars and multiple zig-zag/cross-hatch at Baghouz does imply some differentiation between these two sites. Some specific motifs are used in the same way at both sites but are rare elsewhere.

These comparisons do suggest good general parallels between the assemblages of Baghouz and Tell es-Sawwan. It is not a perfect match but given the poor quality of the data and the distance between the two sites it does imply a general chronological synchronism.

NORTH-EASTERN IRAQI SITES

Tell Shimshara

Tell Shimshara was excavated in 1957 and has been fully published (Mortensen 1970). As such it represents one of the best sources of data although, inevitably, some problems still

remain. The pottery was published by level and quantitative counts are given. Some levels have rather small samples (particularly level 9). Quantification is only possibly using the form types and motif types presented within the publication. As with almost all such systems, it is difficult to transfer this information into another recording system. Most obvious amongst the motifs, for instance, is that single and multiple horizontal bands were not recorded as being individual motifs, although the illustrations clearly indicate that both are present. To maximise the samples and avoid bias, all the statistics used here have been adapted from the published tables rather than taken from the illustrations. It is important, however, to remember the constraints which this imposes.

There were five levels with pottery (levels 13-9). It seems likely that there was some change through time but this is not very clear. The general range of wares and decorative types are broadly consistent (table B.36 and Mortensen 1970, 119 and fig. 109). There may be an increase in painted pottery with time but this is only really noticeable because of the increase in level 9, the level with a very small sample. There is a considerable variation in the general motif types (table B.32 and B.33) but little clear indication of consistent development. Zig-zags and chevrons may decline and step based patterns increase but the problems of sample size make firm conclusions hazardous. In comparative statistics with other sites, it was felt better to combine all the data regardless of level. At the cost of blurring the sample and losing some potential information, this has the advantage of increasing sample size by including unstratified sherds.

Like most other sites with quantities of Samarran style pottery, the decorated assemblage is dominated by painted decoration ranging from 28% of all the pottery in level 13 and 36-57% in levels 12 to 9. Incised decoration is rare (c. 5% in all but level 9) as is painted and incised, which may decrease in quantity through time (ranging from 3-10%). The external parallels of this site are very similar to those of Matarrah and will be discussed with them below.

Mortensen identified clear differences between Standard and Samarran wares present at the site. Such a distinction has been discussed in general above and may simply be two extremes of a range. If, however, Mortensen's suggestion that this pottery was imported is correct, it does not make a significant difference for the general purposes of this analysis. Even if it does not originate at the site itself, it must still be considered to come from within the area of north-eastern Iraq and must form part of the overall ceramic types present in the area during the occupation of the site.

Matarrah

Matarrah was excavated through a series of relatively small soundings. Although this produced quite a large sample of pottery, the published account is based on a sample of only 1051 sherds, 5% of the total sherd bulk (Braidwood *et al* 1952, 8). In the publication, it is suggested that the sample is biased towards Samarran painted. On the basis of this sample

and field notes the assemblage was divided into two phases; the upper phase and the lower phase. Unfortunately, although there are absolute counts given for different vessel forms (Braidwood *et al* 1952, 11-16), the two phases have been counted together and, in almost all cases, it is impossible to use the figures.

The lower phase possesses many of the characteristics of the Proto-Hassuna assemblage which has been discussed above in the section on north-western Iraq. It is characterised by a high proportion of coarse pottery. In addition there are characteristic ogee form jars (Braidwood *et al* 1952, pl. V, 1-3) and close parallels in the vertical walled bowls and low troughs (Braidwood *et al* 1952, fig. 6, 19). The coarse pottery includes examples of relief decoration, very similar to that of the Sinjar area. There are examples of both individual and paired knobs and of the 'eyebrow' motif (Braidwood *et al* 1952, fig. 5, 31; fig. 11, 6, 7 and possibly 8). It is likely that the incised and painted examples of finer pottery assigned to the lower phase at Matarrah are in fact intrusive or the result of flawed stratigraphy in the small excavated areas (Braidwood *et al* 1952, fig. 7, 21; fig. 8, 11; fig. 11, 10, 14; fig. 12, 8). They are identical to those of the upper phase and seem to be very few in number. Therefore, it is not clear whether there was any decoration other than relief in this assemblage.

The upper phase was characterised as being, ceramically, a 'southern variant of the Hassuna assemblage' (Braidwood *et al* 1952, 3). It is certainly clear that it belongs in the general Samarran/Hassuna group. Later studies have tended to include it with the Samarran rather than Hassuna (e.g. Matsutani 1986, 193-194). On the published evidence there seems no reason not to consider the upper phase as a single entity. This is probably a function of the small sample sizes from disparate soundings; to expect to make a sub-division on this basis would be unrealistic.

From the proportions given in the field notes (Braidwood *et al* 1952, 9-10) the percentages of the general types of decoration are given in table B.70. This suggests the incised component dominates over painted in the decorated part of the assemblage, by a ratio of 5 or 6 to 1. Painted and incised is present but in very small numbers. In the publication it is stated that there were only 6 pieces (Braidwood *et al* 1952, 17) but it is unclear whether this was in the total excavation sample or only the 5% which was exported. It should be emphasised that these are radically different proportions to those suggested by inspection of the illustrations. These suggest that approximately 60% of the decorated sherds were painted. Unfortunately, this heavy bias is not only misleading to anything other than a detailed reading of the report but also makes it difficult to use to analyse the incised decoration in any detail. In effect, it makes an analysis of the painted component more prominent than might be ideal.

The high proportion of incised decoration is better paralleled at Tell Hassuna levels III-V than at any of the other Hassuna/Samarran sites. There, incised decoration was approximately four times as common as painted, although painted and incised was a significant component in levels IV and V. The painted component, however, is markedly

different from that at Tell Hassuna. In the traditional nomenclature, it almost entirely made up of 'Samarra' pottery; this impression was verified by Lloyd and Safar, the excavators of Tell Hassuna and originators of the distinction (Braidwood *et al* 1952, 4). A comparison of the motifs used in the entire painted assemblage supports this. The 20 most common exterior motifs at both sites have only four motifs in common. The general absence of motifs on the interior of vessels at Matarrah is remarkable and may emphasise the difference but the sample is too small for this to be particularly useful. The more general comparisons of exterior grouped motifs provide some more surprising information. As at Tell Hassuna and Tell Shimshara, multiple zig-zags and cross-hatching are common (at 23% over all the levels at all three sites), more than twice as common as at any other Hassuna/Samarra sites. A similarly high percentage of motifs based on chevrons may also characterise these three sites. This suggests a northern grouping in which the same general categories of motifs are used in similar ways but the specific choices of motifs within these categories are used to differentiate the sites.

The best general parallels for the decorated assemblage at Matarrah lie at the geographically closest site, Tell Shimshara. Eight shared motifs occur in the 20 most common exterior motifs at both of these sites. In contrast Matarrah shares only two and three motifs in common with Tell Sabi Abyad and Baghouz respectively, the most distant sites in this study. This characteristic lack of parallels with the western sites is also visible at Tell Shimshara. Both sites have a considerable number of motifs in common with Tell es-Sawwan, although these links are more notable at Tell Shimshara than Matarrah. It is remarkable at both sites that the almost identical motifs 82 and 83 are very rare as exterior motifs. At other sites these are extremely common, particularly in the role of a 'filler' motif used to pad out an area without using a more distinctive motif. It is possible that the role of these motifs was fulfilled at these sites by other motifs, perhaps chevrons.

The general motif categories support this (tables B.75 and B.76; figs B.1 and B.2). In addition to chevron and multiple zig-zag and cross-hatch based motifs, both Shimshara and Matarrah have very high quantities of zig-zag based motifs. The quantities of step-based motifs are similar at both sites and are the same as those at southern sites. These characteristically Samarra motifs emphasize the Samarra bias of the painted assemblages from these two sites. There are a few differences as well. Bars are twice as common at Shimshara as Matarrah and the high number of motifs based on them is only matched at Baghouz. One peculiarity of the published assemblage at Matarrah is that there are very few instances of single horizontal lines forming an individual part of the exterior decoration. Unlike at other sites, they are not used singly as dividers between different parts of the decoration; where horizontal lines are used in this way, they are always multiple lines.

The general lack of interior decoration is shared with Tell Shimshara. However, it is significant that at Matarrah there is a complete lack of motif 272, rim ticks, or similar on the

interior rim although it is one of the most characteristic of interior rim motifs at other Hassuna/Samarran sites.

If we take Matarrah and Tell Shimshara together, there appears to be an almost complete Hassuna/Samarran sequence in north-east Iraq. The lower phase at Matarrah parallels Proto-Hassuna, the upper phase Hassuna II and Tell Shimshara Hassuna III/Samarran. Only Hassuna I is unrepresented in excavation. The similarity in painted decoration between upper phase Matarrah and Tell Shimshara is great enough to suggest that there was continuity in regional traditions which maintained a distinction between this area and other areas from which material is available.

NORTH SYRIA/BALIKH VALLEY

Some areas of north-east Syria seem to have formed part of the general Hassuna development and have been included in the discussion above. The west of Syria is excluded from the present discussion as its developmental links with the Hassuna/Halaf tradition do not seem close. The remaining northern area of Syria does provide important new information. It is almost entirely known through the Balikh valley where investigations have been carried out since 1938 (Mallowan 1946). The evidence from this area has been considered in detail in two recent PhD theses (Le Mièrre 1986 and Akkermans 1990) and there are a large number of shorter published reports (e.g. Cauvin and Cauvin 1972; Akkermans 1987; 1988b; 1989a; 1989c; Akkermans and Le Mièrre 1992). These previous accounts will be summarised but no new information will be presented except regarding some of the parallels with northern Iraq. Akkermans' Balikh phasing will be used (Akkermans 1990, 111-112). These can be roughly correlated with developments in northern Iraq but there is no evidence that these correlations are exact until the appearance of Samarran style pottery in Balikh IIIA. One should presume that developments did not happen in parallel but that overlaps existed.

Balikh IIA

This is characterised by the ceramic assemblages of Tell Assouad (Le Mièrre 1979) and Damishliyya (Akkermans 1988b). It is roughly cognate with Proto-Hassuna in northern Iraq from very limited ceramic parallels, technological parallels and radiocarbon dates. The pottery is coarse, vegetable tempered and usually badly fired. At Tell Assouad a significant quantity (14%) of pottery was grit tempered (Le Mièrre 1979, 12). Vessel shapes were typically holemouthed pots, straight walled bowls and low plates. Decoration at Tell Assouad included painted bands and applied cordons. The ceramic assemblage from Abu Hureyra seems to be closely related (Moore 1975; Akkermans 1990, 117).

Balikh IIB

Akkermans has postulated that this phase must exist (1990, 111, 118) but it has not been identified in excavation so its character is not known.

Balikh IIC

This is represented by the lowest strata of Tell Sabi Abyad, levels 7 and 8 (Akkermans 1990, 69-71). Most of the pottery from these levels is coarse and vegetable tempered. A considerable amount is burnished. The shapes are simple, including hemispherical or straight walled bowls, holemouth pots and low-necked jars. Parallels with the Hassuna in northern Iraq come in the form of a few husking tray fragments, both with ridges and grooves. Small quantities of the pottery was decorated with red burnishing, incised and impress cross-hatch and herring bone patterns and bands of dark red paint.

This, and the preceding phase, must roughly parallel Hassuna I and II as defined above.

Balikh IIIA

This phase is represented at Tell Sabi Abyad in levels 4 to 6. It is composed of the continuing local tradition of Balikh IIC together with fine painted wares and Samarran style pottery. The bulk of the pottery is of the local coarse ware (90% in levels 6 and 5, 75% in level 4 [Akkermans 1990, 70]). Decorated coarse ware declines in importance. The most notable feature is the increase in the quantity of fine decorated ware from minute quantities in level 6 to about 25% of the total in level 4 (Akkermans 1990, 70). This fine ware pottery is made in a high fired, lime tempered fabric. Decoration is painted or painted and incised. The paint colours are matt reddish brown to black. The shapes present include hemispherical, S-curved and carinated bowls and vertical necked jars. The decoration is arranged in narrow zones and includes, amongst other patterns, various fringed decorations (motifs 582, 481, 429 etc.) on the interior rim (Akkermans 1989a, fig. IV.7, 45-45, 50; Akkermans 1990, fig. 3.17), horizontal cross-hatching (motifs 506, 460, 443, 373 etc.) on the exterior (Akkermans 1989a, fig. IV.9, 74; Akkermans 1990, fig. 3.17, 2, 5, 6, 12) and chevrons and herringbone patterns (motifs 476, 247 etc.), again on the exterior of vessels, especially jars (Akkermans 1989a, fig. IV.7, 46-49; Akkermans 1990, fig. 3.17, 9, 11).

Although the available sample is too small to allow quantitative comparison, it is possible to make certain parallels. The shapes, the technology and decoration have clear parallels in the Hassuna/Samarran tradition (Akkermans 1989a, 129; Akkermans 1990, 73). Akkermans emphasises the Samarran links, particularly with Tell es-Sawwan and Baghouz (Akkermans 1989a, 139). However, with the assemblage from Khirbet Garsour now known, north Iraq parallels are just as plausible. The best specific parallels with the central Iraqi Samarran come with the interior rim motif (motif 543) which occurs in at least two instances at Tell Sabi Abyad (Akkermans 1990, fig. 3.17 nos 7 and 9). However, other, possibly closer, links with north Iraq and Khirbet Garsour exist. Specific important parallels, which do not exist for central Iraq, are that both have early instances of horizontal cross-hatching, both use swags on interior rims (motif 44) and the very common use of painted herring-bone (motif 247) or chevrons (motifs 32, 476 etc.) on the upper bodies of bowls and exterior of jar



necks. Thus, it may be tentatively suggested that the appearance of Hassuna III/Samarran style ceramics at Sabi Abyad was due to contacts with northern Iraq.

SUMMARY

It may be useful to summarise the main conclusions of this chapter (table B.85). The first major phase of pottery production known in north Iraq is the Proto-Hassuna. Although regional and chronological variations can be suggested, it can be seen at several sites in north Iraq and north-east Syria. An identical or closely related assemblage is present at Matarrah. Other, more loosely related assemblages can be identified at Tell es-Sawwan, levels I-II, and Bouqras. Technologically similar assemblages appear in north Syria at about the same time but there are few obvious links.

The traditional Hassuna/Samarran ceramic sequence is divided into three parts. The first, Hassuna I, is characterised by Archaic Hassuna painted pottery and can only be isolated in north Iraq. The second phase, Hassuna II, is characterised by large quantities of incised Standard Hassuna pottery. It is present at Matarrah and Tell Hassuna. The third phase is Hassuna III. The pottery from this phase is characterised by painted decoration and the vessel shapes include much larger numbers of S-curve and carinated bowls than were present in the preceding phase. In the north this phase is seen at Khirbet Garsour and Tell Shimshara.

In central Iraq, although there are differences in the specific motifs employed, there seem to be few reasons to separate the traditional Samarran from Hassuna III in north Iraq. Certainly the direction in which the two regions developed seems to have been different, but they seem to have far more similarities than dissimilarities. Although general parallels can be drawn between Iraq and north Syria in Proto-Hassuna, Hassuna I and Hassuna III, the first specific parallels occur with Hassuna III/Samarran.

Pottery Catalogue for Figs 3.3 -3.8

Fig. 3.3

- 1: DCA 2. Brown medium hard fabric, medium quantities of medium to large white grits and medium density of fine grey and black grits. Brown paint on exterior, orange brown paint on interior. Rim diam. 130 mm.
- 2: DDE 35. Red hard fired fabric with dense fine white grits. Dark brown-orange paint. Rim diam. 240 mm.
- 3: DCE 35. Yellow-red medium hard fabric, sparse fine white and black grits with occasional larger white grits. Dark orange-brown paint. Rim diam. 240 mm.
- 4: DDC 23. Yellow-red medium hard fabric, sparse fine white and black grits with occasional larger white grits. Dark brown-orange paint. Rim diam. 220 mm.
- 5: DSS 127. Brown medium hard fabric, medium quantities of medium to large white grits and medium density of fine grey and black grits. Dark brown paint. Rim diam. 230 mm.

Fig. 3.4

- 1: DDC 28. Red hard fired fabric with dense fine white grits. Dark brown-orange paint. Rim diam. 140 mm.
- 2: NJP 39D.6. Orange medium hard fabric with sparse fine to medium white grits. Dark orange paint. Rim diam. 160mm.
- 3: DSS 171. Yellow-red medium hard fabric, sparse fine white and black grits with occasional larger white grits. Dull dark brown paint. Rim diam. 160 mm.
- 4: DSS 104. Brown medium hard fabric, medium quantities of medium to large white grits and medium density of fine grey and black grits. Rim diam. 220 mm.
- 5: DSS 172. Yellow-red medium hard fabric, sparse fine white and black grits with occasional larger white grits. Orange brown paint. Rim diam. 180 mm.
- 6: DDB 50. Yellow-red medium hard fabric, sparse fine white and black grits with occasional larger white grits. Orange brown paint. Rim diam. 180 mm.

Fig. 3.5

- 1: DDB 48. Red hard fired fabric with dense fine white grits. Dark brown paint. Rim diam. 220 mm.
- 2: DSS 180. Yellow-red medium hard fabric, sparse fine white and black grits with occasional larger white grits. Dark brown paint. Rim Diam. 120 mm.
- 3: DSS 136. Dark grey-brown fabric with few visible inclusions. Dull grey brown paint. Rim diam. 100 mm.
- 4: DSS 126. Dark grey-brown fabric with few visible inclusions. Dull brown paint. Shallow sharp incisions. Rim diam. 160 mm.
- 5: DSS 129. Yellow-red medium hard fabric, sparse fine white and black grits with occasional larger white grits. Orange brown paint. Rim diam. 170 mm.
- 6: DSS 190. Yellow-red medium hard fabric, sparse fine white and black grits with occasional larger white grits. Very dark brown paint. Rim diam. 260 mm.

Fig. 3.6

- 1: DDB 26. Yellow-red medium hard fabric, sparse fine white and black grits with occasional larger white grits. Faded orange-brown paint. Rim Diam. 180 mm.
- 2: DDB 37. Light yellow soft to medium hard fabric, with dense medium white grits. Brown black paint. Rim diam. 120 mm.
- 3: DCA 86. Dark grey-brown fabric with few visible inclusions. Dark grey brown paint. Rim diam. 90 mm.
- 4: NJP 39G.2. Dark red medium hard fabric with medium concentration of fine white and grey grits. Dark brown paint. Rim diam. 160 mm.
- 5: DCH 1. Light yellow soft to medium hard fabric, with dense medium white grits. Rim diam. 220 mm.
- 6: DSS 19. Dark grey-brown fabric with few visible inclusions. Dull grey brown paint. Rim diam. 160 mm.
- 7: Brown medium hard fabric, medium quantities of medium to large white grits and medium density of fine grey and black grits. Dull dark grey paint. Rim diam. 70 mm.
- 8: DSS 132. Red hard fired fabric with dense fine white grits. Cream interior and exterior slip. Dull brown paint. Rim diam. 260 mm.

Fig. 3.7

- 1: DDE 34. Yellow-red medium hard fabric, sparse fine white and black grits with occasional larger white grits. Dark brown paint. Rim diam. 80 mm.
- 2: DDG 44. Red hard fired fabric with dense fine white grits. Off-white interior and exterior slip. Orange brown paint. Rim diam. 120 mm.
- 3: DSS 169. Yellow-red medium hard fabric, sparse fine white and black grits with occasional larger white grits. Dull brown paint. Rim diam. 160 mm.
- 4: DSS 128. Yellow-red medium hard fabric, sparse fine white and black grits with occasional larger white grits. Faded orange-brown paint. Rim diam. 140 mm.
- 5: DCA 62. Yellow-red medium hard fabric, sparse fine white and black grits with occasional larger white grits. White exterior slip. Faded dull black paint. Rim diam. 150 mm.

Fig. 3.8

- 1: DSS 125. Yellow-red medium hard fabric, sparse fine white and black grits with occasional larger white grits. Dull brown paint. Max. diam. 90 mm.
- 2: DSS 134. Yellow-red medium hard fabric, sparse fine white and black grits with occasional larger white grits. Faded brown paint. Neck diam. 140 mm.
- 3: DCA 60. Brown medium hard fabric, medium quantities of medium to large white grits and medium density of fine grey and black grits. Rim diam. 140 mm.
- 4: DSS 135. Yellow-red medium hard fabric, sparse fine white and black grits with occasional larger white grits. White interior slip. Red paint. Neck diam. 100 mm.
- 5: DCA 92. Yellow-red medium hard fabric, sparse fine white and black grits with occasional larger white grits. Orange brown paint. Deep square bottomed incisions.
- 6: DSS 130. Brown medium hard fabric, medium quantities of medium to large white grits and medium density of fine grey and black grits. Traces of black paint on the neck, fine incisions. Rim Diam. 90 mm.
- 7: DSS 179. Yellow-red medium hard fabric, sparse fine white and black grits with occasional larger white grits. Medium exterior burnish. Slightly glossy red paint.
- 8: DCG 19. Brown medium hard fabric, medium quantities of medium to large white grits and medium density of fine grey and black grits.

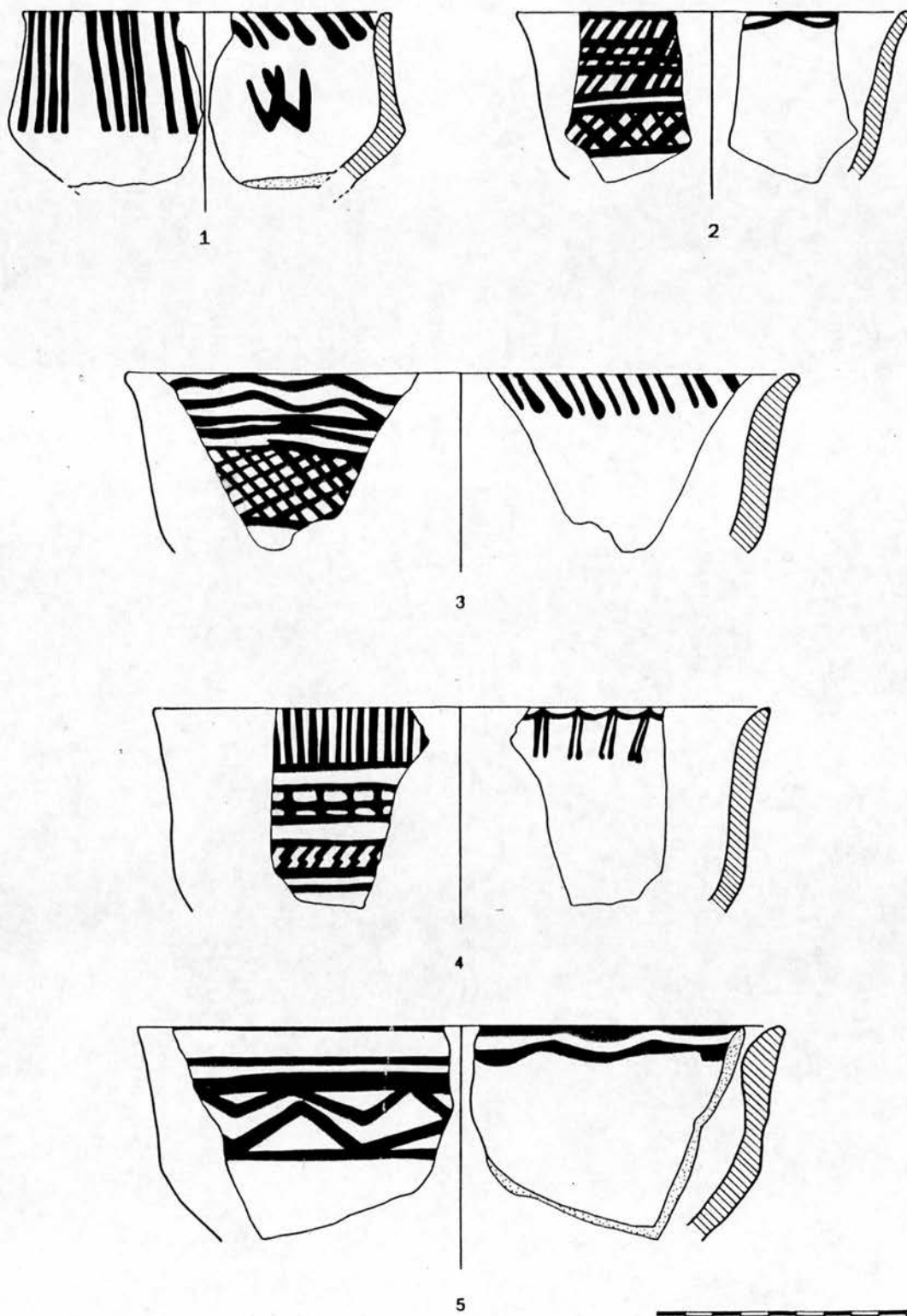


Fig. 3.3: Pottery from Khirbet Garsour

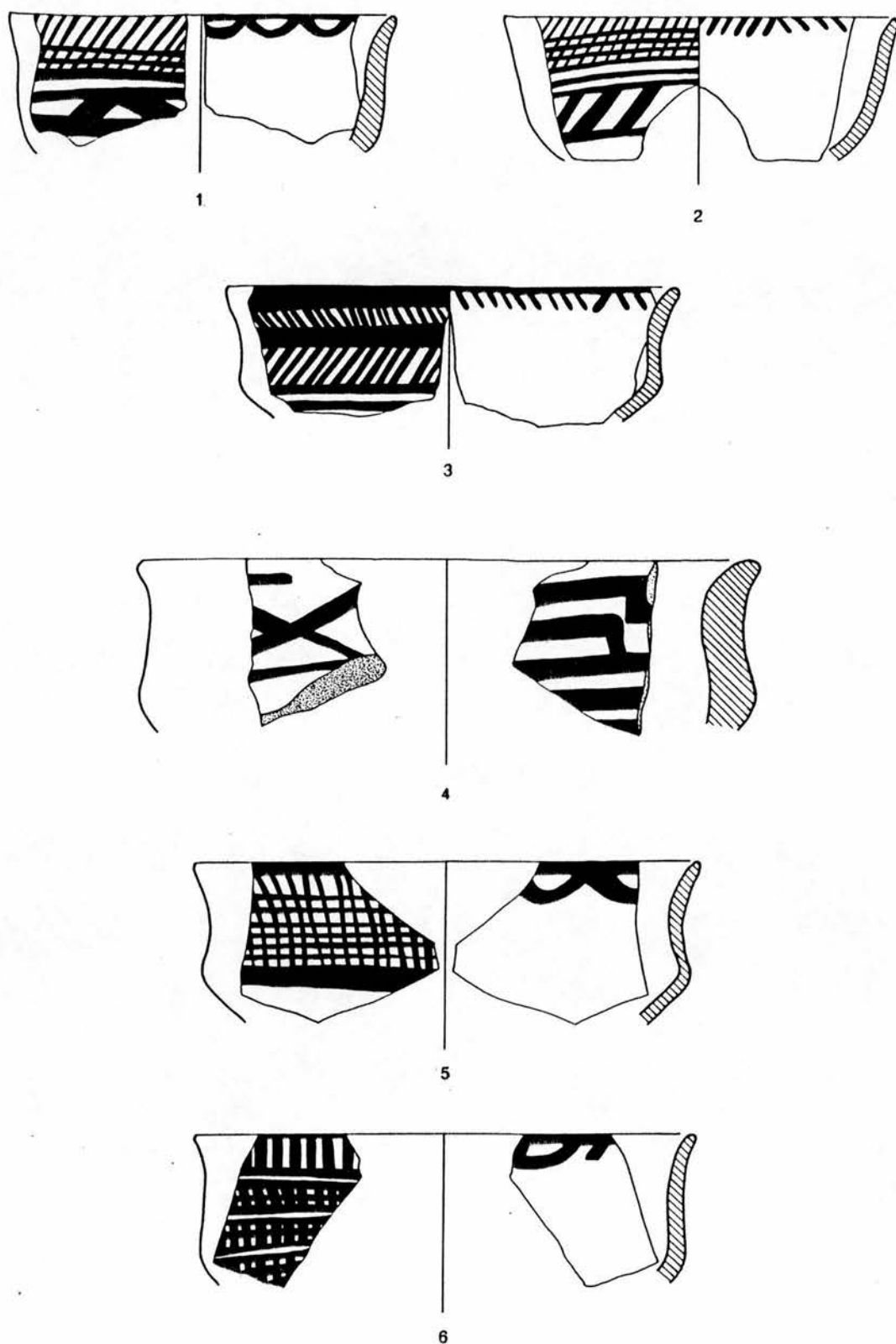


Fig. 3.4: Pottery from Khirbet Garsour

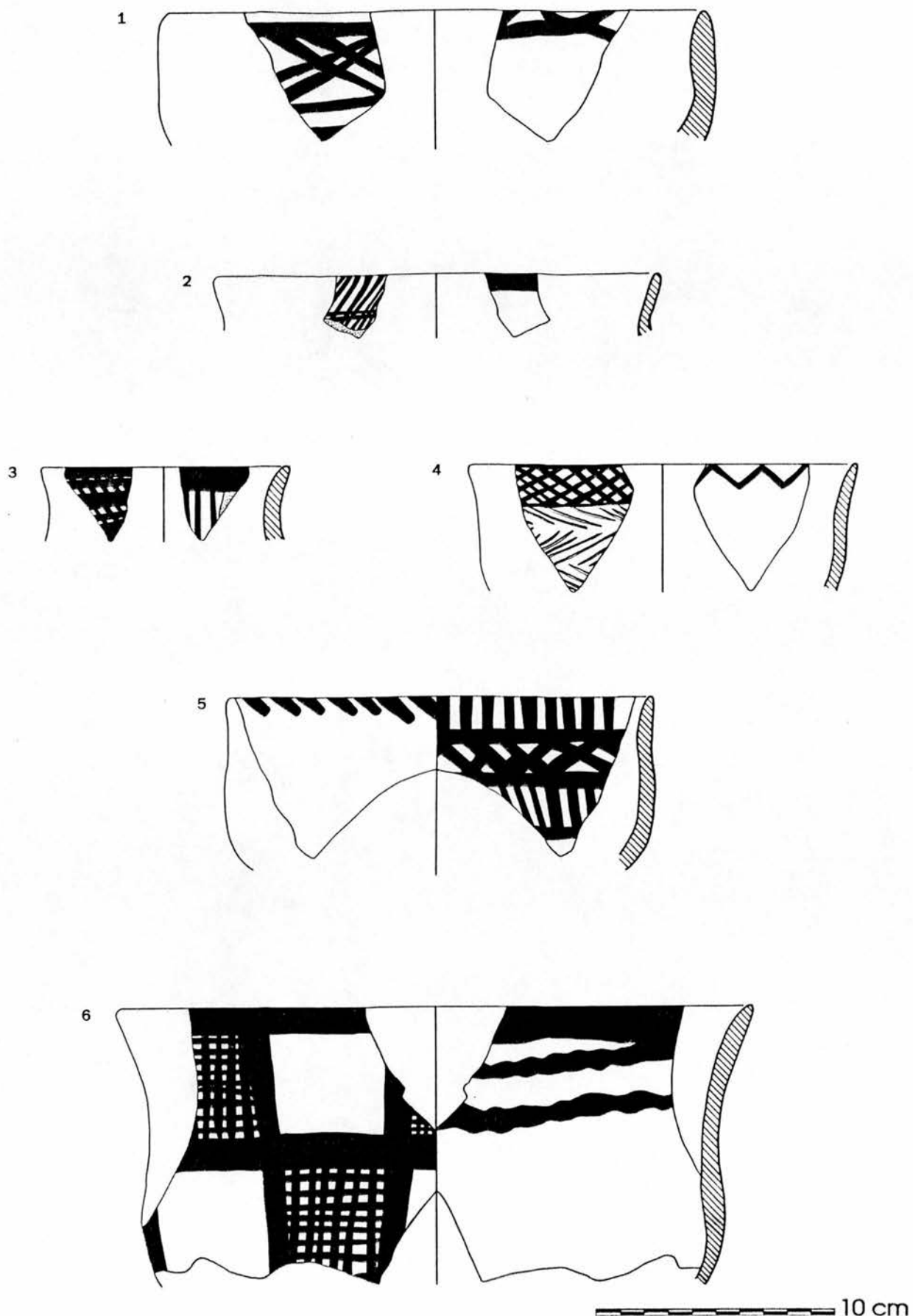


Fig. 3.5: Pottery from Khirbet Garsour

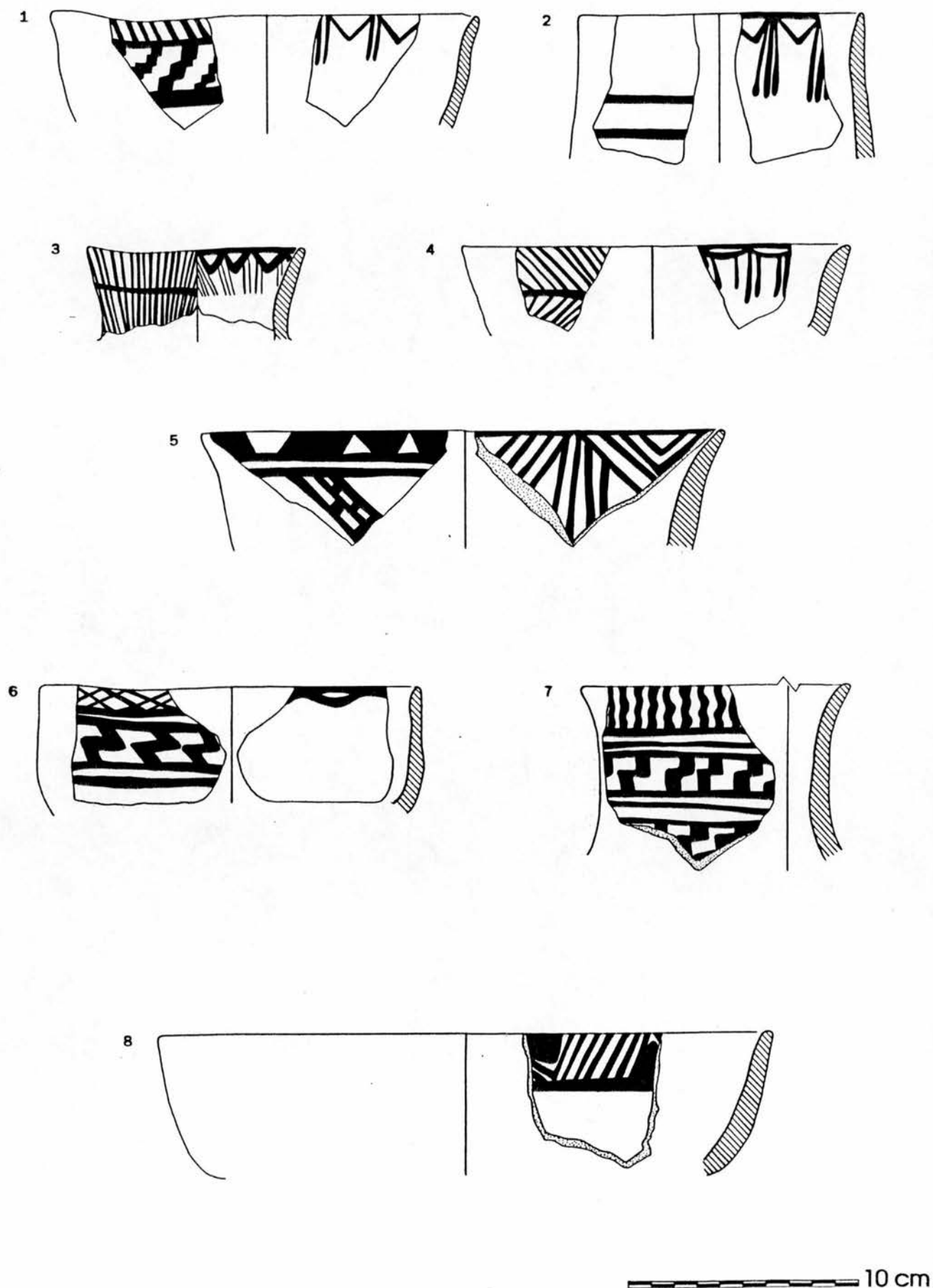
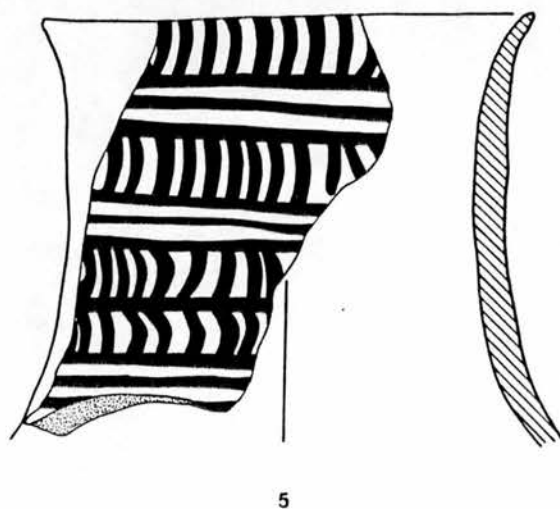
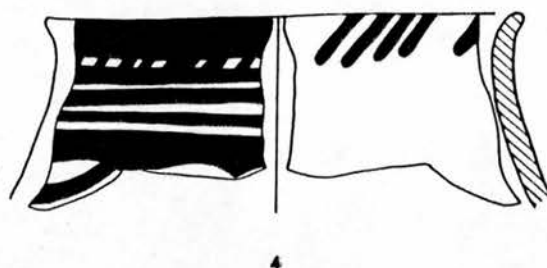
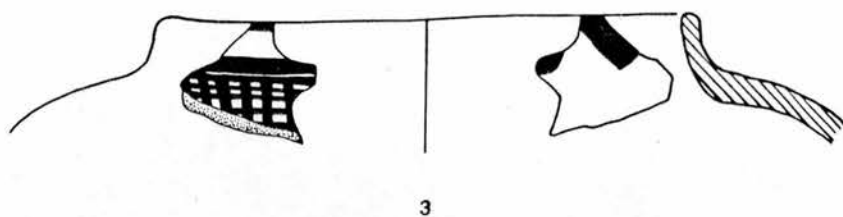
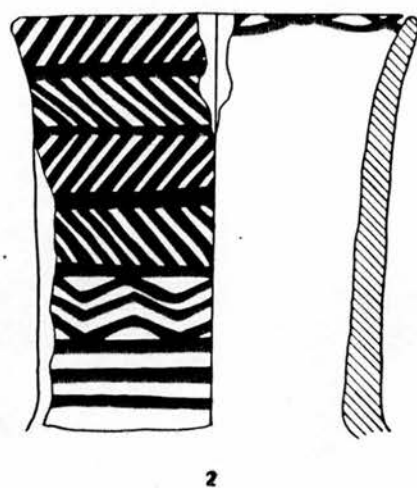
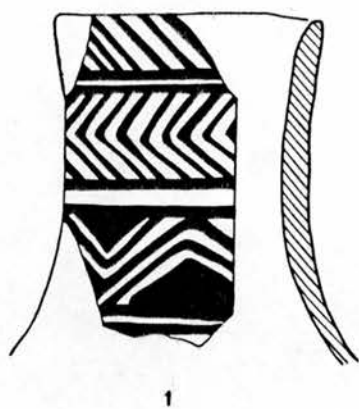


Fig. 3.6: Pottery from Khirbet Garsour



10 cm

Fig. 3.7: Pottery from Khirbet Garsour

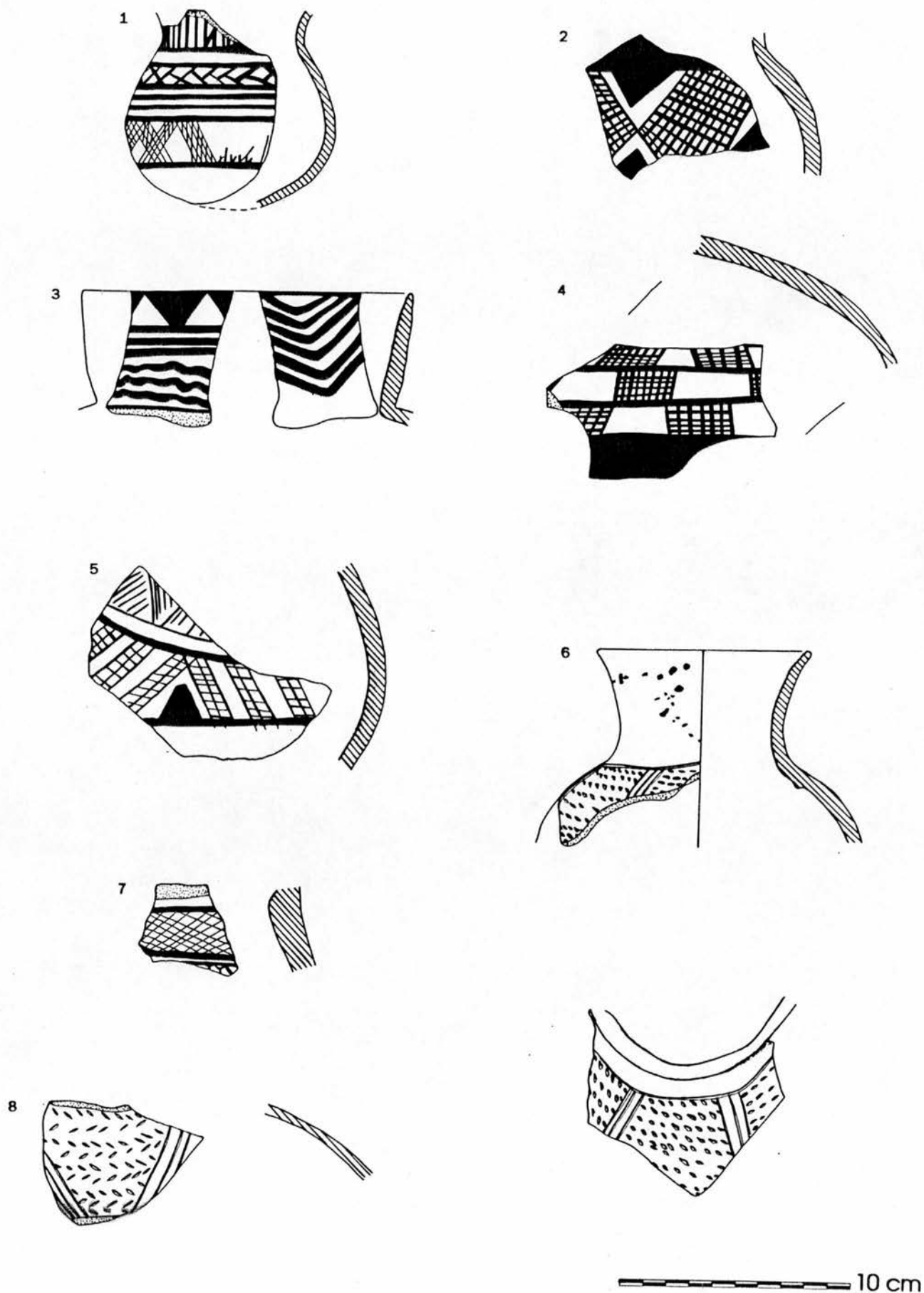


Fig. 3.8: Pottery from Khirbet Garsour

Chapter 4

The Halaf Ceramic Sequence

Introduction

This chapter considers Halaf chronology in terms of its decorated pottery. Typically this is only about 40% of the total sherd material from an Halaf site; for instance at Arpachiyah 48.5% of the assemblage was decorated (Hijara 1980, 187), at Tell Aqab 40% (Davidson 1977, 108) and almost 40% in the lower levels of Yarim Tepe II (Munchaev and Merpert 1981, 233). However, as many vessels were only painted round the rim, the original proportions of painted vessels must have been much greater. If only rim sherds, which were almost always decorated, are considered 75% or more of the fine ware vessels must have been decorated at many sites (e.g. Tell Sabi Abyad [Akkermans 1989a, 111], Kharabeh Shattani [Campbell forthcoming a] Tell Aqab [Davidson 1977, 108]). Coarse ware vessels will be ignored. In part, this is necessary as they have been poorly reported in the past. It also reflects the fact that there seem to be few chronological changes in this part of the assemblage. It should still be noted that a more detailed examination of coarse ware in Halaf contexts is long overdue.

The Halaf pottery sequence has been the object of study on a number of occasions. Most notably it has formed a central theme in two PhDs, those of Davidson (1977) and Hijara (1980) who each proposed different chronological schemes. There have also been a number of shorter contributions on the subject (e.g. Dabbagh 1966; Dunham 1983; Watkins and Campbell 1987), and discussions as part of broader works, such as Perkins (1949), Watson (1983) and Akkermans (1989a and 1990). Although yet another chronological scheme will be proposed here, the detailed stratigraphies presented in the past must still form a large part of its basis.

Despite the greater recent concentration on the Halaf, there are possibly as many problems in the chronology of this period as in those studied in the previous chapter. Because the Halaf has usually been seen as a single phenomenon, there has been a tendency to apply a single, unified chronology over its complete geographical area. For part of this area, this appeared justified, in the past, on the basis of parallels between Tell Aqab and

Arpachiyah (Davidson 1977). The assumption that it would apply further west than the upper Khabur, however, could neither be confirmed or denied. Akkermans' study of the Balikh valley has not only re-emphasised the importance of examining regional sequences before trying to integrate them but has also shown that there seem to be differences between this area and the Arpachiyah sequence (Akkermans 1990). The sequence which will be proposed for the Halaf here is only applicable in its details to the north of Iraq. Certain aspects of it seem to have a much wider relevance and can be proposed as key divisions across much of the range of the Halaf. However, they must be viewed as hypotheses to be confirmed by future work.

Unfortunately the quality of the information from many of the sites precludes a study of the type conducted in the previous chapter. Previous studies have shown that there were major developments within the Halaf sequence so that it is not permissible to use the data from a site without sub-division when the site can be shown to include both early and late Halaf material. The major Halaf sites with long sequences either have insufficient or clearly biased selections of sherds published to allow quantitative re-analysis by phase (as with Tell Aqab and Yarim Tepe) or the pottery has been insufficiently well separated by stratigraphy in excavation and publication (as with Tell Arpachiyah, Chagar Bazar and Tell Halaf). The only exceptions are several short-lived Halaf sites from the latter part of the sequence which have now been excavated and published (Shams ed-Din, Khirbet esh-Shenef, Kharabeh Shattani and Umm Qseir). Unfortunately, apart from very early Halaf sites such as Tell Sabi Abyad and NJP 72, no good samples are available for the earlier half of the Halaf. Motif analyses has been carried out for the sites where it is possible and the results are presented in appendix A. However, little further use of these analyses will be made in this chapter.

Basic Divisions

The latter part of the Halaf sequence for north Iraq and north-east Syria can still be adapted, to a great extent, from previous interpretations although extensive adaptations and changes in emphasis are necessary. Of necessity, much of it will be firmly based on the previous two main schemes of Davidson and Hijara. The sequence is based on changing shapes of pottery. There are some clear correlated changes in decoration type and individual motif frequencies but, given the paucity of early sites, they are impossible to quantify.

The Old Arpachiyah Phasing

Davidson's Halaf sequence is ultimately based on Mallowan's excavations at Arpachiyah (Davidson 1977). A very similar scheme was loosely outlined by Mallowan himself (Mallowan and Rose 1935, 18-21) and subsequently adopted as the basis of her analysis of the Halaf by Perkins (1948). In it the Halaf is divided into three phases; the Late Halaf is characterised by TT6 (and possibly TT7 although very little pottery is known from that level), the Early Halaf by the pottery found at levels which were considered to be below

TT10 on the basis of absolute height and the Middle Halaf, by default, that in between although relatively little securely stratified pottery was known from this phase. Late Halaf was defined by a variety of vessel shapes, including large and small open plates and pedestal bases, as well as the presence of significant quantities of bichrome and polychrome decoration. The Early phase was distinguished by technologically more simple pottery and a more restricted range of forms, such as straight sided bowls and cream bowls. The Middle phase essentially lacked the distinctive traits of the Late and Early phases. It had a more elaborate range of shapes and decoration than the Early phase but lacked the specific elements characteristic of the Late phase.

This division received support from Davidson, particularly from the excavations at Tell Aqab (Davidson and Watkins 1981; Davidson 1977). The Tell Aqab sequence appears to correlate roughly with the old Arpachiyah sequence. Davidson isolated an Early phase, distinctly different from the subsequent phases, a Middle phase, and a Late phase differentiated from the Middle phase by a number of characteristics amongst which was the appearance of significant quantities of bichrome and polychrome decoration. Davidson also made the major addition to the sequence of the Halaf-Ubaid Transitional phase (Davidson 1977, 149). Although such a transitional style of pottery had been suggested before at Mefesh (Mallowan 1946), its importance is now apparent (see also Breniquet 1990).

The difference between the Early and Middle phases is relatively clear at both Arpachiyah and Tell Aqab in terms of vessel shapes and motifs. The dominant vessel form is the straight sided bowl. This makes up as much as 70% of the total assemblage at Aqab and completely overshadows other bowl forms (Davidson 1977, 111). Although the exact frequency is uncertain, in Mallowan's excavations at Arpachiyah, it seems to have been equally important (Davidson 1977, 30). It is frequently decorated by large scale motifs covering the complete area from rim to the edge of the base, bounded at the top and bottom by a thick band. Cross-hatching and cross-hatched lozenges, sometimes in a double line, were frequently used in this zone (e.g. Mallowan and Rose 1935, fig. 70, 1, fig. 71, 2, fig. 72). Alternatively, various types of panelled motifs might be used, often with a contrast between horizontal and vertical emphasis in adjacent panels (e.g. Mallowan and Rose 1935, fig. 69, 1, fig. 70, 5, fig. 71, 3, 5). This contrasts with later decoration where motifs were used in narrow horizontal bands of decoration rather than in broad areas, often extending from rim to base. Throughout the Arpachiyah sequence the typical interior rim motif was either a single band or swags (motif 44). At Tell Aqab, although the Early phase was excavated over an area of only 6 m² (Davidson and Watkins 1981, 5) and the sample was composed of only 482 sherds (Davidson 1977, 109), there seem to be other characteristics associated with this phase. There is a much higher frequency of coarse ware pottery at Aqab (Davidson 1977, 156). Some other vessel forms, notably cream bowls, are more frequent in this phase than later. However, as typologically early cream bowls, in particular, occasionally appear in much later contexts as at Tepe Gawra XIX (Tobler 1950, pl. CXIX, 73) it seems

clear that this phase may be distinguished by relative quantities of vessel forms which continued later rather than by the presence or total absence of specific types.

The distinction between Middle Halaf and Late Halaf is much less clear. To a very large extent the division was a result of using Arpachiyah to define the sequence. Inevitably the TT6 Burnt House was the main source of material. Here, due to entirely exceptional circumstances, the assemblage is dominated by shallow bowls and plates with complex decoration, frequently polychrome or bichrome. As will be seen, polychrome and bichrome decoration is a generally late feature in the Halaf but it certainly occurs neither in this quantity nor associated with these shapes to the same extent anywhere else. Therefore, Arpachiyah seems a very poor type site for the characterisation of the Late Halaf. Furthermore, as Arpachiyah seems to lack any Halaf-Ubaid Transitional period, the late part of the sequence is truncated by an unknown amount. At Tell Aqab, Davidson identified a Middle-Late Halaf division (Davidson 1977). However, it does not seem at all clear cut. Gustavson-Gaube has noted the difficulty in using the Tell Aqab division as the basis for a sequence at other sites (Gustavson-Gaube 1981, 81). While there were undoubtedly chronological developments, the division seems to have been chosen, and perhaps over-emphasised, to synchronise with the Arpachiyah sequence.

The New Arpachiyah Phasing

In 1976 Hijara re-excavated at Arpachiyah (Hijara 1980 and Hijara *et al* 1980). These excavations were conducted by means of three long and narrow (mostly 2.5 m wide) trenches from the top of the tell. These trenches were, in general, quite shallow (c.2 m in most of the trench but as little as 50 cm in places). The pottery from this trench was used to devise a new sequence for the Halaf culture, one which did not appear to accord with the old tripartite sequence in many respects. This was based on four main phases (I-IV) with the last subdivided as IVa and IVb. It was proposed as applicable as a general Halaf ceramic sequence and was rather quickly applied to other sites (e.g. Watson 1983b; Mellaart 1981; Oates 1987b).

Although any addition of a quantified sequence marks an advance, there are a number of inherent problems with the proposed new sequence. The trench was narrow and shallow so that any of individual phase was exposed only over a very small area. Watson and LeBlanc have recently questioned the reliability of the stratigraphic sequence (Watson and LeBlanc 1990, 54) although there is little evidence from the published sections (Hijara *et al* 1980, figs 4 and 5) that its general outline is incorrect. It is the restricted areas exposed which cause most problems in interpretation. The relatively small sample (just over 4400 sherds for the whole sequence of which fewer than 550 had sufficient information on vessel shape to be included in Hijara's analysis) could cause problems both with sampling errors and, potentially, with functional differences within the site remaining undetected. Indeed, we know that the end of Hijara's sequence was very different from that of Mallowan. The

portion of TT6 excavated by Hijara (layers 1-5 in Hijara 1980) appears to have contained little pottery which would differentiate it from the earlier levels and, in particular, little or no polychrome pottery.

Hijara's phases are distinguished almost entirely by the appearance and change in quantity of different vessels forms. In terms of the simple presence/absence of shapes the phasing appears not unreasonable. However, the basic form typology has attracted criticism (Gustavson-Gaube 1981, 78-90; Watson and LeBlanc 1990, 52-55; Akkermans 1990, 131). Some of the forms only occurred once or twice in the entire assemblage and some of the critical forms are so similar to each other so that an apparent replacement of one form by another may, in fact, simply be the gradual evolution within a single type or the result of sampling errors. Given the small sample, it seems unrealistic to accept changes defined by such evidence as definitive. A similar case can be made against Hijara's analysis of the decoration. The level of his study is very specific combinations of motifs rather than either the individual motifs or the structure of the design. Inevitably, there are rarely more than a very few occurrences of each specific combination and the appearance and disappearance of particular combinations may be misleading. While this does make Hijara's decoration analysis much less useful, it should not be used to argue from this, as Watson and LeBlanc have done, that no evolution in the decoration is demonstrable (Watson and LeBlanc 1990, 54). It has not been fully attempted.

This is not to say that the sequence suggested by Hijara is without foundation. The boundaries he draws do seem, on his data, to be the only real ones in his sample and do seem characterised by certain, specific changes. However, the distinctions between the levels are often very subtle and not always completely clear. The continuity between some levels is very high. In fact only one critical change can be isolated.

The sample sizes for phases I and IVb are very small and, therefore, the possibility of errors due to sample size must be greatly increased. It may be safest either to ignore them in building a sequence or combine them with phases II and IVa respectively. The differences between phases II and III are rather minor, being based on the fluctuations of small numbers of slightly varying vessel forms and, lacking further evidence of differentiation, we may again be safest to combine them. By far the most dramatic changes occur between phases III and IVa. The phase I-III assemblage can be characterised as follows:

1. It is dominated by straight sided bowls, which make up more than 60% of all vessels in each phase. There are very few other bowl forms.
2. Hemispherical bowls occur in small quantities.
3. Cream bowls are more common than later and make up around 5% of the total.
4. Jars are relatively uncommon. In all levels there is a small but significant proportion of them with long vertical necks.

In contrast, the pottery from phases IVa and IVb is internally consistent. Its prominent features can be characterised as follows:

1. Straight sided bowls make up less than 15% of the total overall. In level IVa they make up 20% of the total and in level IVb only 2%.
2. Hemispherical bowls now make up between 30% and 35% of the total assemblage.
3. Cream bowls decline in numbers to only 2.5% of the total.
4. A much wider range of other bowl forms appear in phase IVa in small but consistent numbers.
5. More jar forms appear and the total number of jars increases.

This major division obviously corresponds to Davidson's division between Early and Middle/Late Halaf. It is this which underlies the previous suggestion made by the writer that the biggest division of the 'traditional' Halaf sequence is between the Early and Middle phases (Watkins and Campbell 1987, 430-431). It is suggested here that, in detail, most of Hijara's sequence should only be considered applicable to Arpachiyah itself, and that with some reservations. Confirmation of the detailed phasing must be obtained from other sites before its use is adopted even for Halaf sites in the immediate area of Arpachiyah. Nevertheless, it does provide an invaluable unselected sample from secure stratigraphic contexts from what has traditionally been the site used as the basis of the Halaf chronology. It is the best quantification of the Early-Middle split. Ultimately Hijara's sequence may provide evidence for fine chronological changes with the traditional Early Halaf in the Mosul area; the small sample for IVb makes it unlikely that it will be useful to further sub-divide Middle/Late Halaf. It also provides confirmation of the inevitable fact that beneath any simple division of a sequence, whether tripartite or not, lies much more detailed development, possibly restricted to a small region or even a single site, but nonetheless detectable.

The basic division within the Arpachiyah sequence can also be seen at Tell Aqab. In particular, one must highlight the change in bowl forms from the Early phase in which straight or concave sided bowls dominate the assemblage (making up 60% of the small sample) to the Middle phase with a much wider range of bowl shapes, particularly hemispherical bowls.

It seems reasonable, therefore, to accept part of the traditional Halaf chronology as being genuine and clear for north Iraq and north-east Syria. This has been described mainly in terms of form and, to a lesser, extent, decoration. There also seem to be some technological changes associated with this division at Arpachiyah, certainly in the material from Mallowan's excavations. These changes include a probable the decline in the use of

burnishing and the use of more consistently cleaned clay. Rather than characterising the two phases on either side of this division as the traditional Early and Middle Halaf (or Earlier and Later Halaf as was suggested in Watkins and Campbell 1987), it seems better to use a clear bipartite terminology. The two phases will be termed Halaf I and Halaf II. They can certainly be defined in north Iraq and the Khabur head-waters at Arpachiyah and Aqab respectively. There is further information from other sites in this area, which will be discussed below, which suggests it may be a valid division throughout. There are some hints, again to be discussed in detail later, that this basic division may have validity over most of the area of the Halaf.

Yarim Tepe II

The excavations at Yarim Tepe started in 1969 and have produced both the most extensive and the deepest sequence for the Halaf since Arpachiyah. Surprisingly, the results have had very little impact on our understanding of the Halaf sequence. This is largely a problem of publication as no coherent description of the pottery was available until the publication of the lower levels of Yarim Tepe II in 1981 (Munchaev and Merpert 1981) and even this publication has been little used, probably because it is written in Russian.

Although the report does not quantify the pottery from individual levels, it seems clear that the earliest levels fall into the Halaf I category as suggested above. Straight sided bowls are the most common bowl form, possibly by a considerable margin, although the exact frequency is unclear (Munchaev and Merpert 1981, 238, 243). In the majority of cases they seem to be decorated in the typical early manner. The decoration is confined to the exterior, with the exception of an internal rim band, and is usually a single, broad motif between bands rather than parallel rows of motifs (Munchaev and Merpert 1981, pls 85 and 86). Carinated and S-curve bowls also occur (Munchaev and Merpert 1981 pls 89 and 91) together with deep round sided bowls, some of which are almost hole-mouths (Munchaev and Merpert 1981, pl. 88, 2, 4, 5, 7 and 8), although the latter may be absent in the lowest level (Munchaev and Merpert 1981, 245). The other main bowl type is the cream bowl (Munchaev and Merpert 1981, pl. 92, 3 and 5). There is also an interesting group of sherds from large open bowls which are confined to the two lowest levels, levels 8 and 9. These often have extensive decoration on the interior but are characterised by the invariable use of the 'huts and flowers' motif on the exterior (Munchaev and Merpert 1981, 243, pl. 93). Although this motif is well known elsewhere (e.g. Hijara *et al* 1980, fig. 9, 243), its popularity at Yarim Tepe II seems, so far, to be peculiar to that site.

These bowl types, and especially the quantity of straight sided bowls, suggest that the lowest parts of the sequence are analogous to Early Halaf/Halaf I at Arpachiyah and Tell Aqab. Hemi-spherical bowls do not seem to feature to a great extent in the lowest levels, as would be expected in Halaf I. However, a small but increasing number of open plates with interior decoration appear from a depth of 6.2 m (approximately level VII) and larger

numbers are noted in the upper levels of the site (Munchaev and Merpert 1981, 246, pls 94 and 95). This suggests that the lower levels of Yarim Tepe II may start in Halaf I but that this assemblage begins a transition to Halaf II after the lowest two levels. Although it is difficult to document this transition from the published information, it is nonetheless an important confirmation of the broad Halaf I - II distinction. Unfortunately, the information presently available does not allow us to see whether the transition was relatively sudden, as at Arpachiyah or Aqab, or more gradual. The continuing lack of detailed information on the pottery from the later levels of Yarim Tepe II and the lower level of Yarim Tepe III, which seem to follow those of II, means that the potential of this site in providing information on Halaf II remains unfulfilled.

Refining the evidence

Halaf I

The anomaly of the absence of a transition to the recognised early Halaf (whether Hijara's Halaf I or Davidson's Early Halaf) from any preceding culture has been noted before. In particular, at the sites where Hassuna levels are followed by Halaf levels, for example Tell Hassuna, Yarim Tepe I, Hajjiluk, Tell Azzo, Nineveh and Kharabeh Shattani, there always seems to have been a break in the occupation of the site. (e.g. Watkins and Campbell 1987; Akkermans 1991, 124). This is true at all of the long sequences at Arpachiyah, Tell Aqab and Yarim Tepe, although at Yarim Tepe the excavators suggest a few parallels in the coarse ware shapes between the Hassuna and Halaf (Munchaev and Merpert 1981, 235). Ultimately this lack of a developmental link is the main reason for the lack of certainty in the cultural origins of the Halaf. The first evidence for such a link came from Akkermans' excavations at Tell Sabi Abyad (Akkermans 1989a; 1990).

Tell Sabi Abyad

After the earlier part of the Tell Sabi Abyad sequence described in chapter 3, levels 1-3 produced an early Halaf assemblage which Akkermans has convincingly argued predates the conventional Early Halaf (Akkermans 1989a, 130-140, figs.IV.11-46; Akkermans 1990, figs. 3.19-22). This assemblage is clearly related to that of the preceding levels and was excavated in an area with apparently unbroken stratigraphy. To a great extent the decorated Halaf pottery seems to evolve out of the earlier fine painted ware, termed Samarran by Akkermans but the Hassuna III label proposed in the previous chapter is more general. This evidence for a local evolution into the Halaf, compared with its apparent emergence as a full-blown assemblage in north Iraq with no connection to the Hassuna, led Akkermans to suggest that "it is doubtful whether Mesopotamia is truly part of the Halaf region of *origin* [his italics]" (Akkermans 1990, 293). Instead, he proposed that the Halaf originated in Syria

between the Euphrates and the Khabur and only about 200 years spread further east (Akkermans 1990, 293-298).

The shapes at Sabi Abyad cover a range of jars with straight and flaring rims, and a wide variety of bowls. The most common of these are straight sided bowls. Almost half of all bowls are of this form although, interestingly, it was less common in the earlier levels (Akkermans 1989a, 119). These vessels were decorated in very specific ways:

“Whereas other bowl groups showed a wide variety of designs wholly interchangeable within the categories, the range of designs used for the straight sided vessels was highly restricted (mainly cross-hatched diamonds arranged in one or more continuous bands or vertical panels) and virtually limited in distribution to these bowls only.” (Akkermans 1990, 74)

These straight sided bowls are effectively identical in both shape and decoration to the characteristic bowl type isolated in Halaf I at Arpachiyah and Aqab to the east. From the catalogue descriptions accompanying the illustrations, there may have been a tendency at Tell Sabi Abyad, as at Arpachiyah, to use lustrous paint on this type of vessel (Akkermans 1989a).

The other bowl types are rather different. Typically they are carinated and S-curved. These vessels were decorated with a wide variety of motifs. Much of the decoration uses motifs which had links to the Samarran/Hassuna III style (e.g. Akkermans 1989a, fig. IV.21 nos 144-146 with multiple zig-zags; fig. IV.152 with step patterns) as well as other motifs which have better parallels in later Halaf pottery (lozenges, swags and bukrania); sometimes both occur together on the same vessel. Interior rim motifs included both the typical ‘dancing ladies’ (motifs 486, 541, 583 etc.) and ‘pegs’ (motifs 429, 582 etc.) as well as the more typically Halaf swags (motif 44). The most prominent exterior motif on bowls, and to some extent on jars, was the very recognisable ‘horizontal cross-hatching’ (motifs 373, 443, 460 etc.).

NJP 72 (figs. 4.2-4.3)

The detailed study of surveyed sites in the North Jezira Project area in north-west Iraq, in association with Tony Wilkinson, led to the surprising discovery in 1989 of several sites with ceramics very similar to those of Tell Sabi Abyad. Much the best sample comes from NJP 72. The pottery from this site is only known through surface survey and is, therefore, not necessarily a ‘pure’ assemblage (see appendix A for details of the site and indications that the assemblage is not significantly contaminated). The assemblage appears to be extremely similar to that of Tell Sabi Abyad. It is too small and, almost certainly, too biased to allow direct quantitative comparison but it possesses virtually the same characteristics.

Bowls are the most common part of the assemblage. Some of these are ‘classic’ Early Halaf types, straight sided bowls with the exterior decoration zone extending from the rim to the edge of the base and the interior decoration confined to the interior rim

(fig. 4.3, 4 and 8). The fabric of these bowls is similar to later Halaf fabrics, well-fired with very few inclusions, and the paints tend to be light brown and orange. There are many good parallels to them at Arpachiyah and it is noteworthy that there are no close parallels to this fabric type from the slightly earlier site of Khirbet Garsour (see chapter 3).

Other types of bowl, as at Tell Sabi Abyad, appear to be different. Not only do they use a different set of motifs, they also have different fabric and paint types. Mineral inclusions are very common and the paste is less well oxidised, tending to brown rather than orange or buff. The paint colours are darker with more dark browns and blacks than oranges. This fabric and paint is much more similar to the Hassuna III material from Khirbet Garsour. In fabric, paint, and, to an extent, decoration many of the sherds from the two sites are almost identical (cf. fig. 3.4 from Khirbet Garsour and fig. 4.2 from NJP 72). The typical bowl type of this second group is the same as at Tell Sabi Abyad. These are S-curve bowls, sometimes with very marked carinations. The main decoration is on the exterior which is frequently decorated with horizontal cross-hatching, although other motifs also occur. The interior is less extensively decorated, often with vertical lines below a simple rim band.

There are other close parallels with Tell Sabi Abyad. Horizontal cross-hatching occurs at both sites on jar necks as well on bowls. Husking trays and cream bowls are also characteristic forms. Differences are harder to pin-point than similarities because the NJP 72 material certainly contains some later Halaf sherds and probably some residual Hassuna material. If a NJP 72 sherd does not resemble any from Sabi Abyad, it is difficult to be certain that it belongs conclusively to the rest of the Early Halaf assemblage.

Overall there seems to be a remarkably consistent ceramic assemblage which appears both in the Balikh valley and in Iraq to the north of the Jebel Sinjar. While we should not assume that they are identical, it is surprisingly difficult to point to any potential regional differences. At both sites, there seems to be clear continuity from the preceding local phases. Significantly, in north Iraq the logical and probably closely linked predecessor of NJP 72 is nearby Khirbet Garsour, a Hassuna III/Samarran site. At Sabi Abyad, the excavator has linked the development of the Halaf to the earlier appearance of Samarran pottery. Although any conclusions must be tentative, this suggests that Halaf pottery evolved more or less at the same time across a wide swathe of north Mesopotamia having been preceded by a spread in Hassuna III/Samarran style pottery. The question of the form this transition may have taken will be considered later as this chapter is essentially confined to the chronology. As there seem to be clear links with the traditional Early Halaf in the prominence of straight sided bowls, at least in terms of the contrast with later Halaf, this type of assemblage will be termed Halaf Ia and correlates with Akkermans Balikh IIIB. Traditional Early Halaf, documented at Arpachiyah, Tell Aqab and Yarim Tepe, will be designated Halaf Ib.

It is, however, worth examining the extent of this early Halaf. There are a number of sites in the Balikh valley (Akkermans 1990, 177-178) and several in the NJP survey area (fig. 7.5) which have surface remains which clearly belong to this phase. However,

individual sherds from other sites may point to this assemblage being present elsewhere. The most characteristic type of this new early Halaf is a sharply carinated bowl with a zone of horizontal cross-hatching from below the rim to half way down the body (fig. 4.2). Although it is dangerous to propose a single item such as this as a type fossil, it has not been found in any numbers as part of a later assemblage. The distribution of sites at which examples of this type occur in association with otherwise somewhat undiagnostic or disturbed material may serve as a very preliminary indication of the extent of this Halaf Ia assemblage. Examples occur in the Tigris valley in the area flooded by the Eski Mosul Dam. There are several at Tell Harana I on the east bank of the Tigris (pers comm Paulo Fiorina) and there is a single example from Shelgiya on the west bank (pers comm Warwick Ball). A single, classic example is illustrated from Tell Aqab and horizontal cross-hatching was fairly common in the Early Halaf at Tell Aqab (Davidson 1977, 113-114, fig. 20); indeed, given the small sample, Aqab may well have a brief Halaf Ia presence. The Period II pottery from Sakçe Gözü seems to have considerable similarities with the Halaf at Tell Sabi Abyad (see Akkermans 1990, 137) and includes one example of horizontal cross-hatching (Garstang *et al* 1937, pl. XXV, 4). Two more examples come from Jebel Haloula on the bend of the Euphrates near Shams ed-Din (Sagona and Sagona 1988, fig.4.14, 20). If these occurrences are truly from Halaf Ia assemblages, there seems likely that, even in the earliest Halaf, something close to the final extent of the Halaf had already been attained.

With our present knowledge, the distribution of Halaf Ib seems to be slightly more restricted than that of Halaf Ia, although, given the scarcity of the evidence, not too much reliance should be placed on it. In Iraq, Halaf Ib is known from Arpachiyah, Yarim Tepe II and probably some survey sites in north of the Jebel Sinjar. In north-east Syria, it is probably present at most of the sites identified by Davidson as having Early Halaf. However, it is difficult to identify sites in north Syria with indisputable evidence for Halaf Ib. The site which follows Tell Sabi Abyad chronologically in Akkermans' Balikh phasing is Damishliyya. It is difficult to see the published sherds from this site as related to Halaf I (Akkermans 1990, figs. 3.4-3.9); the sherds would fit more comfortably into Halaf II. It is quite possible that, rather than there being a phase missing in the Balikh sequence, this is simply a result of regional variation. In north Syria, the development may be from the Halaf Ia assemblage direct into regional Halaf II assemblages, not necessarily even at the same date as occurred in north Iraq. The similarity in Halaf Ia between the two areas may be illusionary or it may be the exception rather than the rule.

However, Girikihaciyan may be one of the few potential Halaf Ib candidates outside north Iraq and north-east Syria. Watson and LeBlanc concluded that, on the basis of the forms present at Girikihaciyan, the pottery must date from the end of the Halaf (Watson and LeBlanc 1990, 64-65). There is an important anomaly in the vessel shapes which does not receive sufficient attention in this report. Straight sided bowls make up 56% of all painted sherds whose shape was identifiable (Watson and LeBlanc 1990, table 4.2) with cream

bowls, also more common early in the Halaf sequence, making up another 36%. This is completely different from Halaf II assemblages in any area. Some of the decoration also seems rather early in date (Watson and LeBlanc 1990, fig. 4.8, 1-3; fig. 4.7, 4). It is necessary to be cautious about this suggestion. Very little pottery from the site is published (31 sherds) and, as only 13% of the pottery is decorated, this may be a local manifestation of an Halaf site which we should not expect to conform to the Halaf elsewhere. Nonetheless, it is valid to propose that Halaf Ib is not entirely confined to north Iraq and north-east Syria.

Halaf II

The excavation of relatively small, low sites as part of the rescue projects in Iraq and Syria has produced sites such as Kharabeh Shattani in the Saddam Dam (Watkins and Campbell 1986; Baird, Campbell and Watkins forthcoming), Umm Qseir in the Khabur (Hole and Johnston 1986-87) and Shams ed-Din on the Euphrates (Azoury *et al* 1980; Gustavson-Gaube 1981). The excavators of all of these sites have tentatively attributed them to the traditional Late Halaf for a variety of reasons, despite the lack of some of the characteristics most associated with that phase. In particular, these sites lack significant proportions of polychrome pottery or a large preponderance of shallow bowls.

Although the division between Middle Halaf and Late Halaf seems overstated in the traditional scheme which allows these sites to be more comfortably fitted into Halaf II, there is some indication that there are detectable changes in at least some areas which may be contemporary and allow a tentative division. It is undoubtedly true that bichrome and polychrome decoration is more common towards the end of Halaf II. At Arpachiyah, this is overshadowed by the Burnt House but, even from Mallowan's other records, pottery decorated with white paint as well as other colours seems confined to the topmost levels (Mallowan and Rose 1935, 21; Mallowan, unpublished notes in the British Museum). At Aqab, the increasing, though still small (3% of the decorated assemblage), quantities of bichrome pottery were one of the reasons for defining the Late Halaf at that site. From the lack of published bichrome or polychrome sherds, the same seems to hold true for Yarim Tepe II. Both bichrome and polychrome sherds are present in the last Halaf levels at Yarim Tepe III, immediately underlying Ubaid levels (Merpert and Munchaev 1984, 65; Merpert, Munchaev and Bader 1984, 43). This is important in confirming their generally late occurrence but it is unclear whether they occur in large numbers. Unquantified quantities of bichrome pottery also appears at Tepe Gawra (Tobler 1950, 127), Chagar Bazar (Mallowan 1936, 13) and Tell Halaf (Oppenheim 1933, 299). It may be worth noting that all these sites are deeply stratified, long-lived settlements and that, in particular, white paint is almost unknown at any other sites in north Iraq and north Syria. At many other sites, bichrome pottery seems to occur in extremely small quantities. At Kharabeh Shattani it makes up about 0.25% of all fine ware sherds (Campbell forthcoming a). At Umm Qseir only one sherd of

bichrome pottery was found (Hole and Johnston 1986-87) and at Shams ed-Din bichrome decoration occurred on only 0.4% of the painted sherds (Gustavsen-Gaube 1981, 16). Even at Arpachiyah, in Hijara's excavation, there seems to have been minimal quantities of this type of decoration (Hijara 1980). The exception to this seems to be in assemblages from the southern Halaf sites of Choga Mami (Oates 1969) and Baghum (Hijara 1980) where pottery with white paint seems considerably more common. As small quantities start to appear at Aqab even in the traditional Middle Halaf, it seems unlikely that at many sites the presence of bichrome or polychrome pottery will, on its own, be a useful indicator of chronology. It may be useful regionally or in addition to other strands of evidence.

A more reliable type of innovative decoration may be the appearance of 'surface manipulated' sherds. These are known from many late Halaf sites in north Iraq, although their presence has tended to be rather ignored. Mallowan records surface manipulated pottery from late Halaf levels at Arpachiyah (Mallowan, unpublished notes in the British Museum). Many of these sherds still exist in museums and, although few have recorded contexts, at least one comes from TT6. Hijara also found 'surface manipulated' pottery at Arpachiyah in his final phase IVb (Hijara 1980, 77, pl. CXIV, 1-6). The examples from both Mallowan's and Hijara's excavations include sherds with deep finger impressions, tidy fingernail impressions and a distinctive type where a thick layer of clay was added to the exterior of the vessel and scored diagonally. In many cases, and especially the last, the surface manipulation

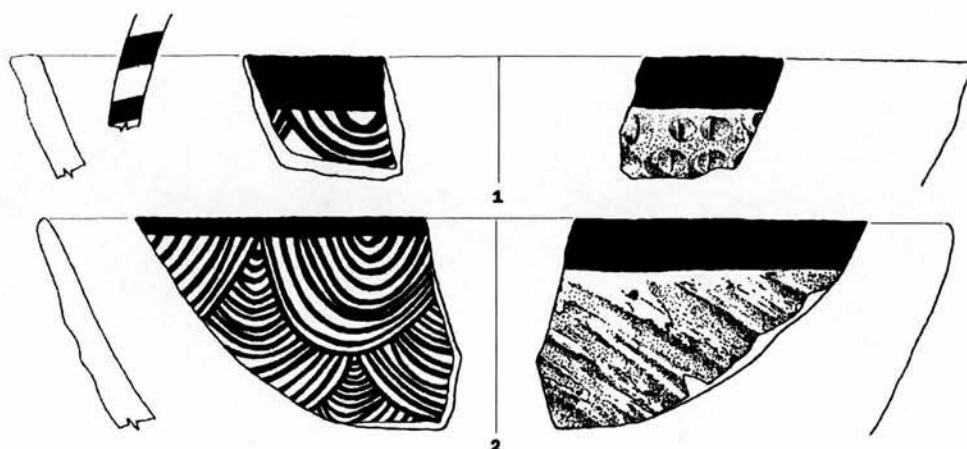


Fig. 4.1 Surface manipulated sherds from Kharabeh Shattani

1. BCO039: Rim Diam 290 mm, orange fabric with no visible inclusions, brown paint
2. BCO015: Rim Diam 280mm, orange fabric with no visible inclusions, red-brown paint, interior in lightly burnished

is combined with classic Halaf painted motifs. The fabrics and paints used seem to be identical to more traditional types of Halaf pottery. This is undoubtedly not imported pottery or from a completely different tradition. It seems to be an integrated part of the Halaf

tradition. Similar 'surface-manipulated' pottery also occurs at Chagar Bazar (Mallowan 1936, fig. 27, 19), Yarim Tepe III, in a late Halaf II context (Merpert, Munchaev and Bader 1984, 43, pl. 5, top left and bottom right), Tell Hassuna (sherds in the Iraq Museum), Kharabeh Shattani (fig. 4.1; Campbell forthcoming a) and Khirbet Derak (Breniquet 1990, 48, pl. 7).

There are two obvious areas for external parallels for this type of decoration. Incised and finger-nail impressed pottery is a characteristic of the Ubaid in the Hamrin. At Tell Abada it makes up 34% of the total Ubaid 2/3 assemblage in levels I and II (Jasim 1985, 130). This level contains a small amount of Halaf pottery which is very similar in some respects to that of Tell Rashid and Tell Hassan. In particular we can point to the common use of four-way cross-hatching (motif 450) at Tell Abada (Jasim 1985, fig. 217, a, b; fig. 218, d-f; fig. 219), Tell Rashid (Jasim 1985, fig. 246, a, d), Tell Songor A (Kamada and Ohtsu 1981, fig. 34, 1, fig. 49, 13) and Tell Hassan (Fiorina 1986, fig. 5, 1, d; fig. 6, 1). Parallels between Tell Hassan and Tepe Gawra suggest that this type of assemblage is late in Halaf II (for instance compare Fiorina 1986, fig. 5, o, p with Tobler 1950, pl. CXVII, 61 and pl. CXVIII, 62; Tepe Gawra also has examples of four-way cross-hatching, otherwise rare in north Iraq, Tobler 1950, pl. CXV, 54, pl. CXVI, 57).

The second source of parallels for the Halaf 'surface manipulated' decoration is the impressed Dalma pottery of north-west Iran (for example Hamlin 1973; 1974; Solecki 1973). In general terms it is quite similar to the Halaf examples, apart from the one shown in fig. 4.1, 2. We should not necessarily look to either the Hamrin Ubaid or the Dalma tradition as a direct source (either of inspiration or imports) for the late Halaf examples. However, it does seem likely that we should see them as very broadly contemporary manifestations of a similar decorative concept (Henrickson and Vitali 1987). If so, the probable dates of the Dalma tradition and Hamrin Ubaid 2/3 seem likely to confirm these sherds as a very late Halaf phenomenon (Oates 1987b; Voigt 1987).

In addition to increased, though still small, quantities of bichrome and polychrome pottery and the appearance of 'surface manipulated' sherds other tentative changes have been identified in the later part of Halaf II. Bow rim jars seem to be a late form (Davidson 1977). There is a possible increase in slightly holemouthed decorated bowls (Campbell 1986). Therefore, a sub-division is proposed within Halaf II. The earlier part, effectively corresponding to traditional Middle Halaf, will be termed Halaf IIa and the later part, Halaf IIb. However, it is far from clear whether this is a break which occurred contemporaneously over the entire range of the Halaf or whether the proposed Halaf IIb is actually a range of regional assemblages which characterise the end of the Halaf period. In particular, it must be noted that the changes suggested as distinguishing these two phases are mainly visible only in north Iraq and north-west Syria. Some may be valid further west and north and there are probably different sub-divisions in these areas which are not present in north Iraq. The term Halaf-Ubaid Transitional will be retained with no modification to its definition.

Summary

This chapter has favoured a new division of the Halaf rather than the traditional tripartite division. The basic split is into Halaf I and Halaf II. An early Halaf I assemblage can be identified and is labelled Halaf Ia. It has close links with the preceding phases. In north Iraq it is very closely linked to Hassuna III. Indeed the exact point of change from Hassuna to Halaf may be meaningless. Khirbet Garsour is assigned to Hassuna III, NJP 72 to Halaf Ia but the two assemblages are clearly very closely linked. In north Syria Halaf Ia at Tell Sabi Abyad does seem to mark a new type of assemblage but again its links with what came before are very great. The traditional Early Halaf is later than Halaf Ia and is termed Halaf Ib. Halaf II has also been sub-divided into Halaf IIa and IIb but the division is probably very regional and not necessarily contemporary and may need to be modified in future.

Pottery Catalogue for Figs 4.2 -4.3

Fig. 4.2

- 1: NJP72 II.8. Buff with grey core fabric with sparse fine grits. Orange brown paint. Rim Diam 160 mm.
- 2: NJP72 Top.74. Yellow buff fabric with medium concentration of fine grey grits. Black, flaking paint. Rim Diam 80 mm.
- 3: NJP72 II.13. Buff fabric with medium concentration of fine white grits. Brown paint. Rim Diam. 140 mm.
- 4: NJP72 Top.72. Brown fabric with no visible inclusions. Dark brown paint. Rim Diam. 200 mm.
- 5: NJP72 III.20. Dark green, very high fired fabric with dense fine black and white grits. Probable waster. Dark brown paint. Rim Diam. 80 mm.
- 6: NJP72 Top.73. Buff fabric with medium concentration of fine grey grits. Dark brown paint, turning dark orange towards base. Rim Diam. undetermined.
- 7: NJP72 A.2. Buff fabric with sparse fine white grits. Red brown paint. Rim Diam. 160 mm.
- 8: NJP72 II.10. Buff with orange core fabric with dense fine white grits and sparse fine grey grits. Red brown paint. Rim Diam. 120 mm.

Fig. 4.3

- 1: NJP72 Top.4. Buff fabric with no grits. Orange brown paint. Rim Diam. 220 mm.
- 2: NJP72 IV.33. Grey fabric with no visible grits and a highly burnished exterior surface. Very fine, shallow incisions, apparently filled with a white clay.
- 3: NJP72 G.22. Buff fabric with no visible inclusions. Interior and exterior cream slip. Brown paint. Base Diam. uncertain.
- 4: NJP72 Top.75. Grey brown fabric with no visible inclusions. Dark brown paint. Rim Diam. 160 mm. Base Diam 140 mm.
- 5: NJP72 A.7. Orange fabric with no visible inclusions. Orange paint. Base Diam. uncertain.
- 6: NJP72 Top.71. Pink fabric with sparse fine white grits. White slip on interior and exterior. Black paint. Rim Diam. 200 mm. Base Diam. 180 mm.
- 7: NJP72 III.22. Brown fabric with dense fine white grits. Dark brown paint. Rim Diam. 160 mm.
- 8: NJP72 G.5. Brown fabric with medium concentration of white grits. Red brown paint. Rim Diam. 220 mm.

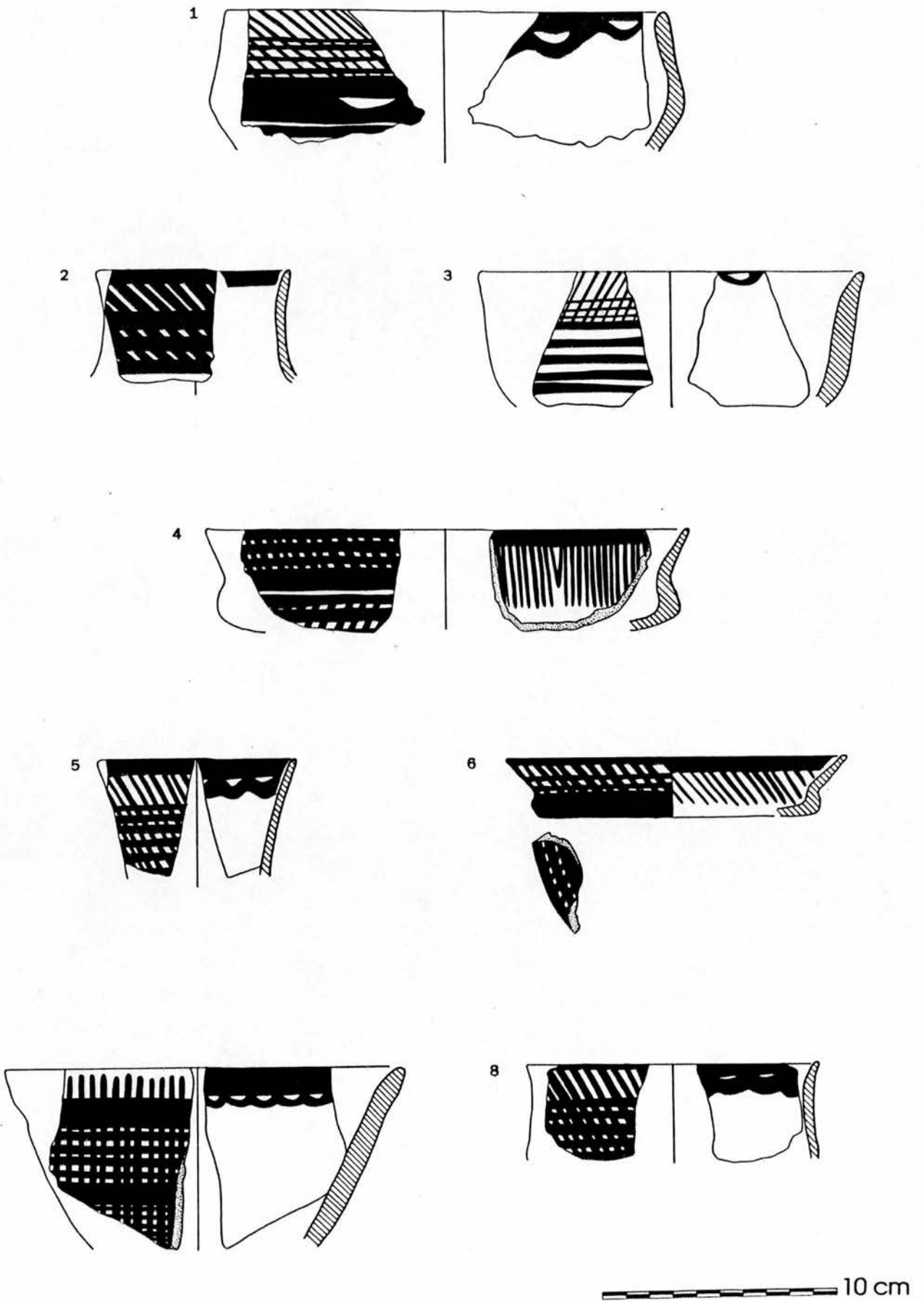


Fig. 4.2: Pottery from NJP 72

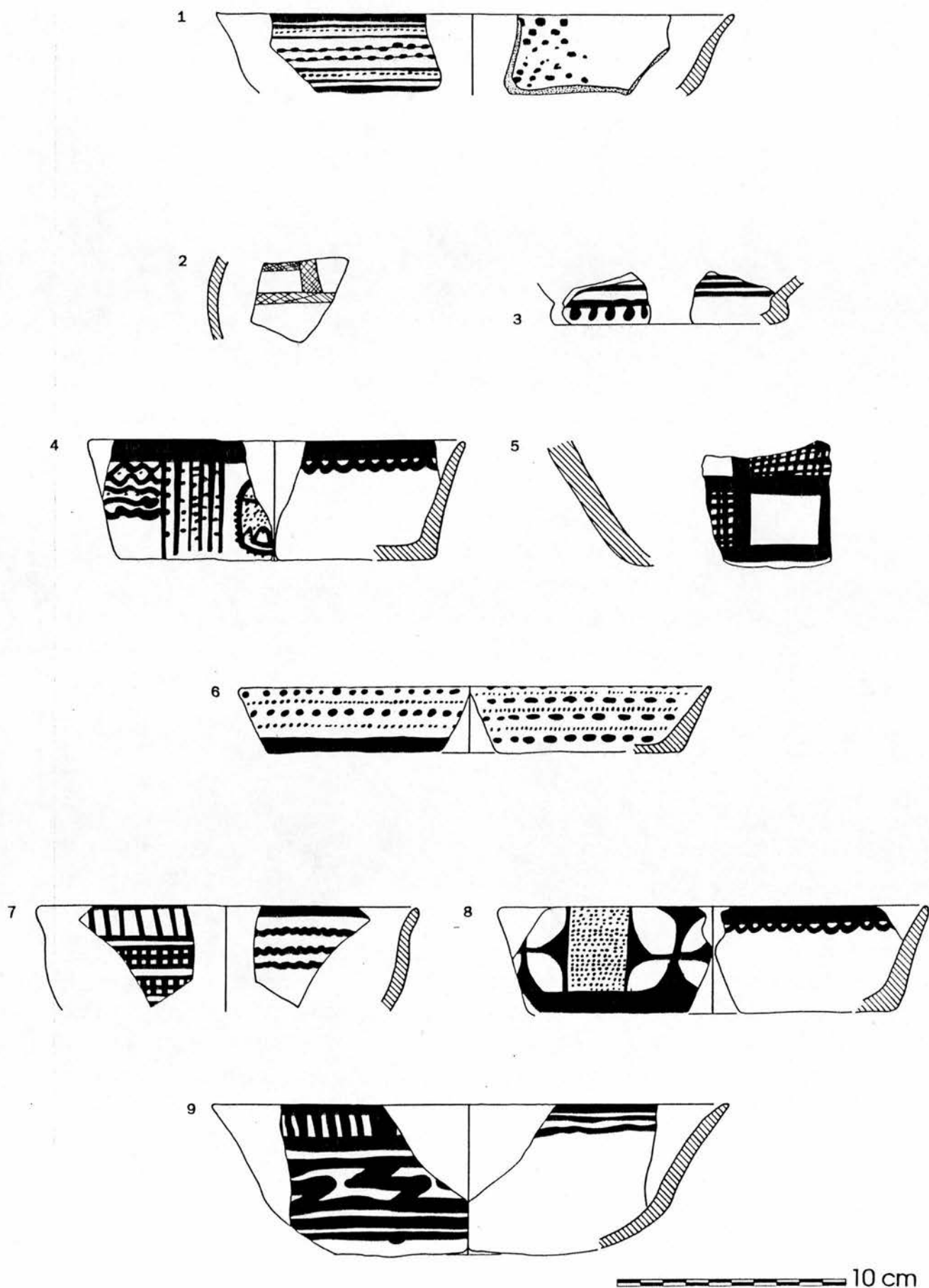


Fig. 4.3: Pottery from NJP 72

Chapter 5

Chronology: Summary and Absolute Dates

Relative Chronology

The discussion so far has consisted, in the main, of a detailed comparison of sites on a regional and inter-regional basis based on chronological divisions, the absolute dates of which, deliberately, are imprecise. It has been structured, for convenience, along traditional lines. Now, the nature and strength of some of the relationships which have been established can be used to pull together some more detailed and clearly defined divisions. However, there are a number of considerations which I feel ought to be re-iterated.

Firstly, the data used is often of poor quality. Any conclusions must recognise this fact and must not rely to too great a degree on any individual piece of information which may itself be dubious. Furthermore few sites have been excavated and none of these possess a full sequence. It is, therefore, impossible to make detailed cross-checks between sites which might allow us to isolate an aberrant sequence or sample. It is also necessary to establish a seriation between the different sequences on the basis of the scanty evidence available to link them and, possibly, combine them in the most logical way.

The second major consideration is that we possess no data on small regional groups of sites. It is vital to avoid an over-generalisation of the final ceramic sequence. From the limited data available, it seems certain that there are regional variations. We must suppose that at least this degree of variation also exists where we have no data. Therefore, although the aim is to construct a relative chronology which will integrate sites over a wide area, this must be based on traits which are very clear and on major changes in the assemblage and which can, where possible, be shown to exist in different areas rather than on very specific changes only seen at a single site which may be a valid regional chronological marker but certainly not a more general one. Some possible regional divisions can be suggested.

The earliest part of the sequence under consideration here are the early ceramic sites. It has been argued that the ceramic assemblages are relatively diverse over north Mesopotamia

but they possess several common attributes. It is predominantly a coarse, vegetable tempered ware with a relatively low level of technology. Decoration is relatively rare.

The Proto-Hassuna assemblage occurs over a wide area of northern Iraq and north-eastern Syria. Traits are held in common at the excavated sites of Matarrah (Lower Phase), Hassuna (Ia), Tell Sotto (levels 3-6), Yarim Tepe I (levels 11-12), Kultepe, Umm Dabaghiyah, Tell Kashkashok, Bouqras (to some extent) and Kharabeh Shattani. This is not an identical assemblage at each site. There seems to be considerable variation, possibly pointing to a looseness of the tradition but there is also some indication of variation between sub-regions. The depth of stratigraphy at some of these sites indicates that this ceramic assemblage was of considerable length so that chronological trends are also a factor.

There are several other assemblages which can be considered to be generally contemporary with this proto-Hassuna assemblage. An assemblage of coarse, vegetable-tempered pottery characterises Tell es-Sawwan level I and, probably, II. Although it lacks direct, specific parallels to the Proto-Hassuna assemblage, it can be suggested that, technologically, it would fit best into this period. Specific parallels which support this suggestion come from the stone vessels which accompanied the burials of level I which can be closely paralleled at Kultepe and Bouqras.

The assemblage of the Balikh valley in this general period has rather different characteristics. Akkermans and Le Mièrè have shown their distinctness from the material of the Amuq A corpus and also from that of the Proto-Hassuna (Le Mièrè 1986; Akkermans 1990). Its technological range is very similar to that of the Proto-Hassuna but specific details are very different.

Although these seem to be distinct regional assemblages with a degree of sub-division within them there are links beyond those of a similar level of technology. Le Mièrè and Picon have suggested that there was a regular and, at least locally, significant exchange of ceramics (Le Mièrè and Picon 1987).

The following part of the sequence is extremely badly defined. There is an apparent gap in the sequence at Tell es-Sawwan between levels II and III. In the Balikh Valley, Akkermans has already pointed to a probable gap following the Assouad/Damishliyya phase (Balikh IIA). It is possible that in northern Syria the Altmonochrome assemblage, which is very poorly defined, will fit into this gap but it is unclear. It is only in north-western Iraq that a number of sites have been excavated which clearly fill this gap.

Yarim Tepe I indicates a gradual evolution both stylistically and technologically from the Proto-Hassuna into a phase characterised by Archaic Hassuna painted pottery (the Hassuna I phase) which has very distinctive technological characteristics and some specific stylistic attributes. It seems very likely that the Tell Hassuna sequence is truncated at the early end. Even in level Ib, the assemblage seems to be dominated by incised Standard Hassuna decoration. At Yarim Tepe I there are clearly several levels in which Archaic Hassuna painted is the predominant type of decoration.

From level 6 at Yarim Tepe I the sequence seems to correlate well with that of Tell Hassuna. The ceramic assemblages are dominated by a much greater number of grit tempered sherds. The major type of decoration is incised. At Hassuna this combination of incised Standard Hassuna and painted Archaic Hassuna is typical of levels IB, IC and II. From that point, painted Standard Hassuna appears in significant quantities, making up 15-20% of the decorated assemblage, although this assemblage remains dominated by incision (the Hassuna II phase). Part of this painted Standard Hassuna pottery consists of sherds decorated in a more complex manner; this has traditionally been identified as Samarran but here is treated, in the main, as simply another aspect of Standard Hassuna. However, there is certainly a component of 'classic' Samarran sherds present. It seems probable that the upper phase at Matarrah should be considered contemporary with Hassuna II on account of the high proportion of incised decoration. However, it has been suggested above that there is considerable variation between Hassuna and Matarrah in the minority painted components. This may be a chronological or, more probably, a regional variation.

In contrast to the Hassuna II assemblage which is clearly present in north-western Iraq, the traditional 'Samarran' sites, apart from Matarrah, have decorated assemblages which are dominated by painted decoration. This is a very clear distinction (fig. 3.2). The pottery from Samarran, Tell es-Sawwan III-V, Baghouz and Tell Shimshara are clearly differentiated from Tell Hassuna, Matarrah and Yarim Tepe. This difference could, in the past, be construed as regional, although it would always have been complicated the geographical position of Tell Shimshara. However, the assemblage at Khirbet Garsour, to the north of the Jebel Sinjar, is dominated by painted decoration and clearly fits within the general 'Samarran' tradition. Thus it seems clear that the Standard Hassuna assemblage, with its incised decoration, was replaced by a painted, 'Samarran' assemblage (here termed Hassuna II) even in north-western Iraq. The question then arises as to whether this was an internal evolution, perhaps characteristic of only a short time, or whether it arose from the spread of Samarran assemblages from central Iraq.

There has traditionally been a tendency to see the Samarran assemblages as having their 'homeland' in central Iraq around Tell es-Sawwan where they are best represented. If this were so, it would be logical to suggest, as has been done conventionally, that it started at a period contemporary with Hassuna II. This would allow the view that Hassuna and Samarran assemblages are in origin regional differences in a single overall assemblage with the same technology and the same range of decoration possible in both assemblages. The emphasis on incised decoration in the north-west and on painted decoration in the north-east and central Iraq would then be due to cultural and stylistic preferences. It cannot be definitely shown, on the present evidence, that this is not the case.

However, to maintain this interpretation it is necessary to postulate evidence which is, as yet, missing. There is no evidence for the development of the Samarran assemblage in central Iraq, either technologically or stylistically. On the other hand there are clear indications of

the technological evolution of Standard Hassuna painted/Samarran painted within the north-western Iraqi sequence. The painted pottery appears gradually within the sequence as a decorative technique on a grit tempered fabric which existed previously with incised decoration. Some of the later characteristic painted Hassuna/Samarran motifs can be seen on Archaic Hassuna painted pottery (Munchaev and Merpert 1981, fig. 29; Lloyd and Safar 1945, fig. 8). Furthermore, it is possible to suggest tentatively that there is some evidence from the end of the Tell Hassuna sequence of an increase in the quantity of painted pottery. In level VI, the quantity of painted pottery was coupled with a decline in frequency of incised decoration (fig. 3.1); unfortunately this is a very poorly stratified level. At Tell es-Sawwan there is also some evidence pointing to a greater prominence of incised pottery in the earliest level with true Samarran pottery. Level IIIA may have more than twice as much incised pottery as the later levels. Unfortunately again, it is not certain as the sample is rather small. The 41 Samarran sherds in level II of Tell es-Sawwan, which show an even higher number of incised sherds, must be considered as being more likely to be intrusive to that level or misassigned in excavation. However, if they did genuinely belong to that level, it might be used as a good argument that Hassuna/Samarran pottery was being adopted in a context which was still dominated by local coarse wares.

Therefore, it is suggested here that it is most probable that painted Standard Hassuna pottery formed the basis for the painted Hassuna III/Samarran style and that it evolved in northern Iraq. From here it was adopted over a much wider area, including central Iraq. It does seem clear that, on the present evidence, the Samarran style was most highly developed in central Iraq and continued as the predominant style here for a much longer period than in the north, eventually evolving to the Choga Mami Transitional assemblage (Oates 1986). However, this must remain an hypothesis. It is argued for on the basis of probability and in an attempt to minimise the need to rely on the presumption of the character of currently absent evidence. It is more logically satisfying than the more established view but that, in itself, is not final proof. What is becoming increasingly clear is the scale and importance of the distribution of Hassuna III/Samarran pottery. It seems highly likely that, whether it spread from central Iraq or northern Iraq, its spread should be regarded as broadly contemporary and to underpin what has previously been seen as an Halaf phenomenon.

There is considerable difficulty in attempting to use the traditional pottery names to label the phases suggested above. In particular, the potential for confusion with previous chronological schemes is immense. Therefore a new nomenclature is suggested here for the four main types of ceramic assemblage, characterised by the dominant decorative types. The Proto-Hassuna assemblage seems already well defined and will be retained. The assemblage characterised by the dominance of Archaic painted pottery will be labelled Hassuna I; that characterised by incised Standard Hassuna pottery will be named Hassuna II; that dominated by painted decoration will be labelled Hassuna III in north Iraq and, as it is already has an existing currency and is, so far, the only style present, Samarran in central Iraq.

As just mentioned, the Samarran painted assemblage seems to have developed in a different trajectory in central Mesopotamia. In the north it appears to have developed into the Halaf Ia style. There is no definite indication as to whether the duration of this evolution was prolonged. Some evidence that it was short may be gained from the sites analysed in the North Jezira Project survey (see chapter 7). Here, there are relatively large numbers of sites at which surface pottery can be assigned to Proto-Hassuna, Hassuna I and Hassuna II assemblages. Equally there are several sites which have distinctive early Halaf Ia material. However, Khirbet Garsour is the only site at which painted Hassuna III pottery can be positively identified.

In northern Syria, in the Balikh valley, the sequence evolved slightly differently. The early ceramic assemblage seen at Tell Assouad and Damishliyya evolves into the local Neolithic pottery types. These are largely undecorated and, in most regards, have few direct connections with northern Iraq; one exception being the presence of husking trays in small numbers. The early levels of Tell Sabi Abyad, where the sequence and sample are both good, possess this assemblage. This local ceramic tradition persists but there appears, superimposed upon it, a relatively small number of sherds decorated in the painted Samarran style. It is not certain whether the influence is coming from central Mesopotamia or northern Iraq. It may well be that it is the same spread of the Hassuna painted idiom which has been suggested as bringing the style to central Iraq; there is some support for this in the absolute chronology to be discussed below. If so, this relatively sudden spread is of considerable importance.

This local assemblage with Samarran painted elements clearly evolves into an early Halaf assemblage with no further obvious, external influences. This early Halaf assemblage, for the first time, establishes a coherent development for the beginning of the Halaf ceramic style. Although it shares several elements of the traditional Early Halaf, it is very distinctive. Here it will be termed Halaf Ia with the traditional Early Halaf being termed Halaf Ib.

Although this Halaf Ia assemblage does not appear in any of the excavated sequences in north Iraq, distinctive elements of it occur in very small quantities in the Hassuna III assemblage at Khirbet Garsour. An apparently full Halaf Ia assemblage appears to the north of the Jebel Sinjar at NJP 72. There are several other sites in the North Jezira Project survey area which have surface sherds which seem to belong to this phase and isolated sherds of a type which would fit into this phase better than elsewhere in the Halaf sequence occur in Tigris valley sites in the area of the Eski Mosul Dam and in the Euphrates valley in north-western Syria. Therefore, on the limited evidence currently available, this appears to be essentially a single ceramic assemblage or a group of regionally varying, but very similar ceramic assemblages appearing over a very wide area. This seems, on the evidence of Khirbet Garsour, to have evolved out of the Samarran/Hassuna III assemblage both in north Iraq and north Syria at, presumably, broadly the same time.

Later Halaf developments are better known, and this analysis does not attempt to present a radical new scheme. Halaf Ib style pottery appears at a wide variety of sites in northern Iraq

and north-eastern Syria and equates with traditional Early Halaf. It may well occur further west in Syria, or more regionalised variants of it may occur, but the lack of excavated evidence makes this unclear. Given the fact that they have not been excavated at the same site or in exactly the same area, it is even possible that the Halaf Ia and Halaf Ib assemblages are contemporary. Halaf Ib might dominate in the Mosul area (Arpachiyah) and the Sinjar plain (Yarim Tepe) with Halaf Ia to the north of the Jebel Sinjar and across the north of Syria. This interpretation, however, would pose problems with the probable appearance of a Halaf Ib assemblage at Tell Aqab and, perhaps, Girikihaciyan. It would also reintroduce the problems caused by the absence of direct links between Halaf Ib and Hassuna III which would otherwise be neatly solved by a chronologically intervening Halaf Ia phase. Therefore, the relationship between Halaf Ia and Halaf Ib will be discussed as being chronological with the expectation that more information will clarify the issue in the future.

Halaf IIa, the traditional Middle Halaf, is characterised by a radical increase in the diversity of bowl forms and a corresponding increase in the range and use of a variety of motifs. Sites with this assemblage occur over the whole area which has usually been seen as the Halaf range, with the probable exception of central Iraq. The traditional Late Halaf phase, here termed Halaf IIb, can be distinguished on a variety of grounds. Many of these are subtle and it is not clear how many of them are regional and how many span the entire range of the culture. The conventional characteristic of the Late Halaf, bichrome and polychrome pottery, still remains a valid divider. However, with the exception of the Hamrin area and central Iraq, into which the distribution of Halaf pottery now extended, it does not appear in large numbers at many of the sites which can be identified as Halaf IIb. The details of this phase may be regional and it is not necessarily synchronous over the entire range. The final phase of the Halaf culture, the Halaf-Ubaid Transitional, is not considered in detail here but does appear to be widespread and well characterised (Davidson 1977; Breniquet 1987 and 1990).

Changing Tempering Strategies

The chronological outline summarised above is largely based on the variables of form and decoration. Ideally, other attributes of pottery should also be considered although, because of the lack of published detail, it has not been possible to do this in any comprehensive manner. However, a case study was made with the material of the North Jezira Project survey in north-east Iraq (my thanks are due to Tony Wilkinson for suggesting this case study). The pottery which I studied in detail was analysed by fabric as well as shape and decoration. Each sherd was assigned a suggested chronological attribution based on the decoration and shape more than anything else. Fabric was very rarely an important element in this attribution. Therefore, if we examine the changes in tempering strategies through time, we may have a check on the scheme suggested above. If the tempering strategies present a coherent development, it will support the suggested chronological development. The result is graphed in fig. 5.1. This groups Hassuna II and III together to increase the sample size. Although its

results are imprecise, this chart seems to reflect the chronological trends suggested. Furthermore there seem to be logical transitions between the tempering strategy of one period and the next.

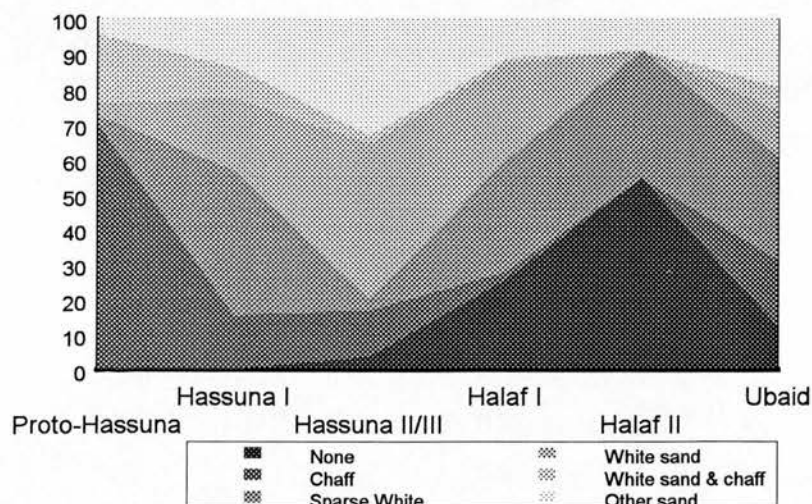


Fig. 5.1 Major temper types in Late Neolithic

Absolute Chronology

Radiocarbon dating provides the only method of adding an absolute chronology to the relative chronological structure outlined above. Although ^{14}C dating has a long history and its proper use in archaeology has been discussed many times, there are as yet few completely accepted procedures for its use. Some of the problems of its use for the Halaf and Hassuna were discussed in Watkins and Campbell (1987). The discussion here will build and develop on that paper.

Radiocarbon dates are subject to a wide variety of potential distortions, many of which are unavoidable. Although these problems are becoming increasingly recognised, few procedures have been suggested which can deal with them. This has meant that in the large majority of studies, the methodology in the use of dates is to reject selectively those which seem 'bad' and then to transfer a list or graph of dates to a chronology by picking, by eye and guess-work, likely key dates. This does not necessarily give a true picture.

Dates are usually quoted as a mean date and a standard deviation. This provides a range into which there is a 68% chance that that date would fall. It is felt here that it is better to use a range to two standard deviations which provides a range with a 95% chance of including the true ^{14}C date. However, the error covered in this, for conventional dating, largely consists

of the counting error. It does not include other sources of error which may occur in many laboratories. Unfortunately, these other sources of error can be considerable. In their inter-laboratory comparison Aitchison *et al* suggest that multiplying the published error by 2.3 may give a safer representation of the true error (Aitchison *et al* 1990). In addition, there can be considerable systematic errors in dates given by different laboratories, ranging from 50 to 250 years (Aitchison *et al* 1990). Even if one were to take the optimistic view that this problem has been addressed and corrected in the leading laboratories, most of the older dates which are available will still be, potentially, much less accurate than their standard deviation suggests.

In a recent test study of a typical set of radiocarbon dates from tree rings it has been stated that "... we must use great care in attempting to pin-point any event in real time with routine radiocarbon dates—even where large numbers of routine radiocarbon dates are involved. However, some comfort can be drawn from the fact that ... only 5% are outside 500 radiocarbon years from the true date." (Baillie 1990, 365).

Archaeological factors have even more influence on the accuracy of a date and, since the circumstances of the excavation of each date can vary much more widely than its counting in a laboratory, are potentially much harder to control or quantify. The sources of error can be numerous. The stratigraphy of the site may be faulty and the ^{14}C sample may be poorly related to the events it purports to date. This may occur on any site but we should be particularly cautious in accepting a date which has been collected from a trench excavated many years before (as with the Tell Halaf date, GrN-2660 and the Tell Arpachiyah dates P-584 and P-585).

The ^{14}C sample can be redeposited or contaminated. The latter is perhaps less common in deeply stratified Near Eastern sites but undoubtedly exists. The former is very important on multiple period sites because of the possibility of material from early periods being incorporated in later deposits. If this has not been identified in excavation it will be extremely difficult to identify in any way other than being too early a date.

The range of dates now available is slightly larger than presented in Watkins and Campbell (1987). However, many of the same problems remain. Many of the dates were produced in the early days of ^{14}C dating and must therefore be treated with some doubt both because of the potential errors in the date and the poor context of the original samples. The very uneven distribution of dates through time and space remains. To some extent it is even worse as there are almost no new, later Halaf dates. However, there are now more groups of dates available from individual sites; Bouqras, Tell Sabi Abyad and Tell es-Sawwan in particular, with the possible addition of Yarim Tepe. These will be used as the basis of a slightly different approach to the dates than was used in the earlier article.

There have been a number of different methods proposed to handle groups of ^{14}C dates together with established relative chronologies. To a certain extent these are directed at different questions. Here the greatest interest is to date the start and end of ceramic phases to

allow us to present a secure chronological framework and, potentially, to allow the relative date of developments in different areas to be judged.

The interquartile method has been proposed by Ottaway (Ottaway 1973) and has more recently been developed to a much more sophisticated statistical procedure (Aitchison, Ottaway, and Al-Razaira 1991). However, it remains open to criticism. It eliminates 50% of all dates, which is considerably more than statistically could be expected to be rejected; even if dates are evaluated on archaeological grounds it would be surprising if so many were abnormal. It depends, almost entirely, on the acceptance of the validity of the concept of a *floruit* of a culture or site being an appropriate model. The *floruit* is specifically the central period of a chronological entity rather than being any attempt to define its total range (Aitchison, Ottaway, and Al-Razaira 1991). If one is concerned with the minimal range this may be useful. Equally it may be a realistic proposition in some cases where it is the range of a fully developed culture, deliberately leaving aside transitional areas where it may be emerging or being transformed. This validity is, perhaps, something to be demonstrated rather than assumed, especially as there may be an element of statistical rather than archaeological convenience in the use of interquartile ranges. Clearly, the interquartile approach will approximate more closely to the true range of a phenomenon as the number of dates increases, provided these are distributed fairly evenly through the range. With a large enough number, it does not matter if a large portion of good dates are rejected; those left will date the extremes only slightly less well. More serious is the situation where one end of a range has a large number of dates and the other very few. When a quarter of dates are rejected at either end, the latter will be severely truncated and the former hardly at all.

For the problems in this thesis, the use of interquartile ranges does not seem appropriate. It is probably more important to consider the extremes of the ranges of the ceramic types rather than their central periods of use. The distribution of dates is also very uneven and would probably lead to very distorted truncations of some parts of ranges. The difficulties caused by the unevenness of the distribution also causes problems in using other methods of estimating distribution which rely on the rejection of an even number of dates from either end of the sequence. Thus the POOR (Proportion Outside of Range) method suggested by Orton (Orton 1984; Cunliffe and Orton 1984) rejects the number of dates which, statistically, would be expected to fall out of either end of the true range of an entity seems inappropriate (see Watkins and Campbell 1987 for its experimental use in this period).

In 1984 Orton proposed the use of Maximum Likelihood Estimation (MLE) to take into account the known stratigraphic relationships between different contexts which were being dated (Cunliffe and Orton 1984). This seems a very important approach as we normally have considerably more information about the likely date of a ^{14}C sample than simply its laboratory result. In particular, we may know that one date, or group of dates, must be later than another group even though their standard deviations overlap considerably. This allows the potential ranges of dates to be narrowed considerably and boundaries between phases

dated more precisely. A similar approach, using different statistics has recently been proposed by Buck *et al* (1991). Although these methods should prove important in future, they are only really applicable either where there is a substantial set of stratified dates or where a sequence is being analysed when there are demonstrably no overlaps between the phases. The only site studied here with sufficient dates from several phases to use these techniques is Bouqras and too few of the dates have been published in detail. Unfortunately, the more general chronological phases may well have considerable overlaps so we cannot use either technique here.

The approach used here is to take the sites with reasonable numbers of ^{14}C determinations to try and establish secure dates for specific ceramic phases in a specific place. These dates can then be related to the relative phasing and additional radiocarbon dates can be set against that to assess their compatibility with the proposed dating. This is helped by the fact that most of these sites are dated by only a small number of major ^{14}C laboratories which should help to minimise the influence of inter-laboratory variation. All of the determinations are relatively modern. Where more than one date exists for a level at a site, and makes very general archaeological sense in terms of the stratigraphy, the dates are tested to see whether they are statistically distinguishable. If they are not, a pooled mean is calculated which provides a single date and minimises the error range. The methods used are those of Ward and Wilson (1976).

Apart from a few cases where the dates are very clearly wrong, no dates will be eliminated *a priori*. Instead their archaeological sense will be considered; whether they occur in stratigraphic sequence, whether they may be residual from earlier levels and so on.

Although the need to calibrate radiocarbon years to calendar years has been known for a long time (de Vries 1959, Suess 1970), until recently this has had little influence on Mesopotamian prehistory. Instead there has been a feeling that, as it is unnecessary to relate the early prehistoric to the historical chronology, it is justifiable to ignore the implications of calibration. This would be reasonable if the relationship between radiocarbon years and calendar years were linear. This, however, is far from the case. One hundred radiocarbon years may relate to very few or very many calendar years depending on the part of the calibration curve that it falls on. This is important not only in assessing duration of periods but in apparent overlaps and gaps in the dates. Plateaux on the calibration curve leads to a wide range of calendar dates producing the same or very similar radiocarbon dates (for instance a calendar date of 6500 BC and one of 7000 BC will produce radiocarbon dates within 200 years of each other). Where the number of dates is low, steep slopes on parts of the calibration curve may produce apparent lacunae in dates. Thus the steep drop between 4400 and 4200 radiocarbon years BC actually covers less than 100 calendar years.

It has become more common, since the wide availability of simple calibration programs (e.g. Robinson 1986, Stuiver and Reimer 1986), to take the nature of the relationship between radiocarbon and calendar years into account (see in particular Waterbolk 1987). This

is considered vital here in attempting to associate radiocarbon dates with the potential events with which they are related. However, as the traditional dates for the period have been expressed in radiocarbon years, dates will not be routinely given in calibrated form to avoid confusion. Where calibrated dates are given in addition to the radiocarbon dates, the calibration routine of Robinson will be used because of its convenient graphical output. However, the actual calibration method used does not have a major effect on the calibrated dates produced (see the comparisons in Aitchison *et al* 1989). In general, dates will be quoted in radiocarbon years BC to preserve continuity with general usage. Where dates are cited only the conventional single standard deviation is given. However, whenever dates are graphed the standard deviations have been doubled. The only place where an error multiplier has been used is in the summary graph (fig. 5.10) where a multiplier of 2.3 has been used because dates from several different laboratories are being compared.

Tell Bouqras

The dates from Tell Bouqras provide a important large data set for the start of the Late Neolithic sequence although not all the dates appear to have been published (Waterbolk 1987, graph 10 although these are difficult to reconcile with the dates given in Aurenche and Evin 1987, 702-3). There is a clear general relationship between the stratigraphic position of a sample and its date. However, the specific position and date of each sample is rather confused. This may partly be due to the relatively unspecific contexts given for the dates but is perhaps rather more due to the nature of the area of the calibration curve on which they fall (see also Waterbolk 1987, 44). There is a severe plateau between approximately 6100 uncal BC and 5800 uncal BC and also what appears to be another plateau around 6200 uncal BC, although this is off the end of the calibration curve used here. These plateaux are separated by a short, steep section and followed by a long steep section dropping to a shallower slope around 5500 uncal BC. These characteristics of the curve do much to contribute to the rather confusing scatter of dates. The large number of dates fall around 6000 uncal BC due to one plateau. The group of dates for levels 9 to 7 around 6350 uncal BC may represent a similar plateau. Importantly the apparent gap between the majority of the dates and the four late dates of level 3-4 exists as the very sharply dropping portion of the curve between 5750 and 5550.

It still remains difficult to interpret the dates relative to the stratigraphic sequence. There are a number of chronological inversions of dates. These may be best explained as reuse/redeposition of older material. Dates which are too early for the context in which they occur are to be expected in a stratified sites and they are what has been termed in a slightly different context the 'respectable' error (Roaf 1987, 210). Therefore to bracket the Bouqras phasing, two averaged dates have been used. The two dates from level 9 are statistically indistinguishable and give an averaged date of 6343 ± 35 . Assuming that the stratigraphic attributions are correct, that no significant post-depositional contamination has occurred and

that no inaccuracies have been introduced in the laboratory the latest dates in a level or phase should be closest to the actual date of that phase. Therefore the group of four late dates from level 3-4 are taken as being most likely to date the end of the sequence. The pooled mean of these dates is 5548 ± 24 .

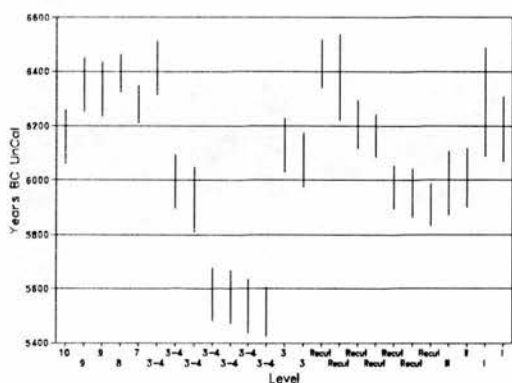


Fig. 5.2 Tell Bouqras ^{14}C Dates

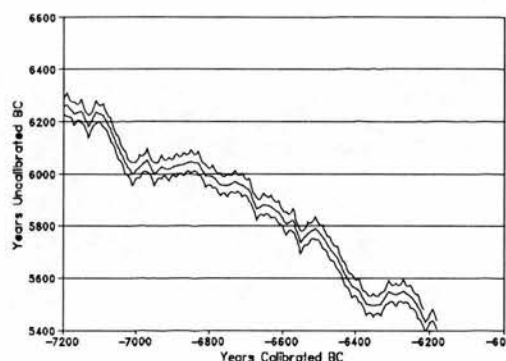


Fig. 5.3 Section of the ^{14}C calibration curve for the Tell Bouqras dates

The first of these mean dates comes from an aceramic level and almost certainly predates the Proto-Hassuna phase to which levels 1-6 are related. The second comes from a level with much pottery comparable to Umm Dabaghiyah but which may also contain Archaic Hassuna elements (Le Mièrè 1986). It may, therefore, belong to the very end of the Proto-Hassuna, or even post-date it. Between them, these two mean dates should at least bracket the Proto-Hassuna. The graph given by Waterbolk (1987, graph 10), on what may be a slightly different set of dates, suggests that the earliest pottery levels may be around 6250 uncal BC but whether this should be taken as the start of the Proto-Hassuna without further evidence both of the context of the samples and the ceramic associations is doubtful.

Telul eth-Thalathat

There are five ^{14}C dates from Telul eth-Thalathat, two of which seem to be from the same sample (Tk-199a and b). The dates from level XVI are scattered. Tk-199a and b seem to be completely incompatible with a Proto-Hassuna date and must be contaminated or misassigned to that level. The two dates from XV can be averaged to give a date of 5764 ± 67 . This fits well in the bracket for the proto-Hassuna suggested by Bouqras. The other level XVI date (Tk-23, 5410 ± 100) could fit within this range as well.

Other Proto-Hassuna sites

There is a single date from the Aceramic Neolithic site of Magzaliya of 6060 ± 50 and two dates from level 1-2 at Tell Sotto of 5520 ± 60 and 5200 ± 50 . The two Tell Sotto dates are from a single sample and the fact that they are statistically distinguishable must throw some doubt on the reliability of all three samples from the IGAN laboratory. The Magzaliya date seems rather late and, as a single date, unsuited to be used as a *terminus ante quem* for the

Proto-Hassuna in north Iraq. As with the Yarim Tepe dates to be discussed in detail below, there seems to be a significant problems in using Soviet dates together with western laboratories dates.

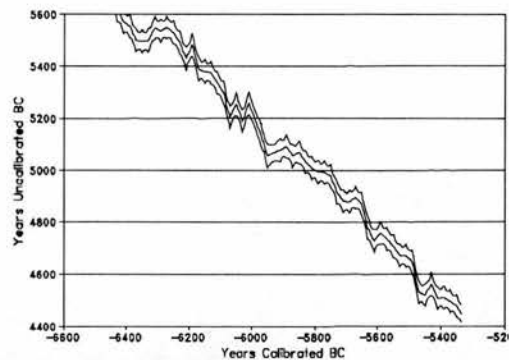
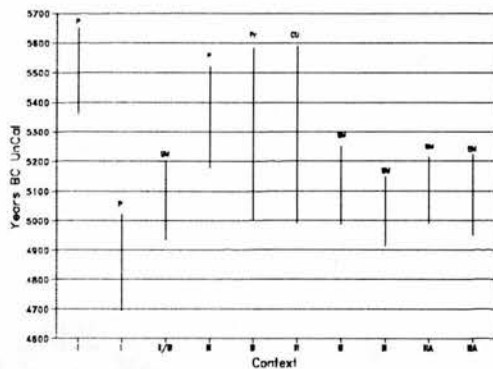
Unfortunately the four dates available from Tell Kashkashok are also rather unsatisfactory. One date (Tk-802, 4340 ± 220) is certainly too late for its apparent context. Its large standard deviation suggests that it may have been a problematic sample in any case. One might guess that it is an intrusive sample from the later Ubaid burials on the site. The other three dates, all from level 3 are scattered and are statistically distinguishable. However, the range they cover is consistent with other Proto-Hassuna dates within a two standard deviation range. As an indication, which is not used on fig. 5.10 as it is statistically unjustified, their average is 5754 ± 59 . The single date from the lower phase at Matarrah (5620 ± 250), while not adding a huge amount of information on its own, at least falls into the same time bracket.

Balikh Phase IIA

The three dates from a single context from Damishliyya provide a good indication of a general date within this phase. Although the excavator expresses disquiet that one of them appears markedly earlier than the other two (Akkermans 1990, 115), they are statistically indistinguishable and can be averaged to produce a date of 5770 ± 45 . The dates from Tell Assouad must be very suspect in view of the apparently inverted stratigraphy. In particular, the very early date from a ceramic level (6500 ± 120) must be distrusted. From this paucity of data, all that can be stated is that at least part of the period was contemporary with the Proto-Hassuna of northern Iraq.

Tell es-Sawwan

The dates from Tell es-Sawwan fall into two categories; those dated by the British Museum and those dated by other laboratories. The British Museum dates appear visually consistent and statistically indistinguishable. Those from levels III and IIIA can be combined to give a date of 5083 ± 31 . The dates from the other laboratories are rather more scattered. The three level III dates from P, Pr and CU are all earlier than the British Museum results but all have very large standard deviations and all could fall within the BM range at two standard deviations. If they are considered with the BM dates, they cannot be statistically distinguished and would give an average date of 5126 ± 28 but the BM mean date is probably more reasonable in view of the close internal agreement amongst the British Museum samples.



The two P dates for level I are wildly divergent. One (P-857) post-dates all the level III samples and must be considered very suspect. The other level I date (P-855, 5506±73) would fit well with the suggestion, made above, that levels I and II are cognate with the early portions of the Hassuna sequence (Hassuna I and/or II). However, given that the other two P dates from Tell es-Sawwan are unsatisfactory, it would be less than rigorous to accept unconditionally the one date which fits our preconceptions.

Fig. 5.5 Section of the ^{14}C calibration curve for the Tell es-Sawwan dates

Hassuna II and III dates

Unfortunately, there have been very few determinations on material from these phase. The Tell Shimshara dates were made on the organic content of sherds, suspected of possible contamination and rejected by the excavator (Mortensen 1970, 136). They do indeed seem improbably early for a Samarran/Hassuna III context. The Hassuna level V date (W-660) has a standard deviation of 200 years, making it virtually useless chronologically. Much of its two standard deviation range of 800 years (1840 years with a 2.3 error multiplier!) does fit the expected range. The Yarim Tepe I dates, which should fit in this phase, are discussed below.

Tell Sabi Abyad

The dates from Tell Sabi Abyad cover the transition from a local ceramic phase with Samarran elements (Balikh IIIA) to Halaf Ia (Balikh IIIB). They largely fall into stratigraphic order with the exception of a single date from level 3 (GrN-16802) which must be redeposited or contaminated. This portion of the calibration curve is relatively even and should not have a major effect on these dates. The three pre-Halaf dates can be combined to give 5263 ± 27 and the two level 5 give a date of 5187 ± 28 . The two level 4 dates are statistically distinguishable but, combined with the stratigraphic evidence, GrN-16803 (5125 ± 25) must be close to the true date.

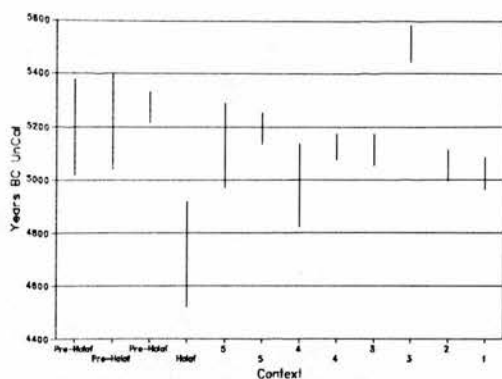


Fig. 5.6 Tell Sabi Abyad 14C dates

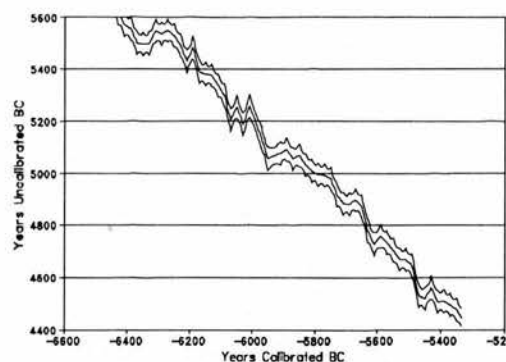


Fig. 5.7 Section of the 14C calibration curve for the Tell Sabi Abyad dates

The Sabi Abyad dates provide a firm date for the transition to Halaf Ia in the Balikh valley. In view of the close similarity of the Halaf Ia assemblage here and in north-western Iraq, it is reasonable to suggest that this date can be taken, pending confirmatory dates, to represent the start of the Halaf culture at some point between 5200 and 5100 uncal BC and that this date may be approximately accurate over much of northern Mesopotamia.

This indicates that the Tell Halaf date at the base of the early Halaf (GrN-2660, 5620 ± 35) cannot refer to the Halaf. It may, however, be a not unreasonable date for the Altmonochrome pottery phase.

These dates, on face value, might be taken to indicate that the Samarran influence at Tell Sabi Abyad started before the full Samarran assemblage appeared at Tell es-Sawwan in Level III. This conclusion would be premature. It ignores possible inter-laboratory errors between Groningen and the British Museum. The error ranges of the two sets of dates make it conceivable, though unlikely, that the chronological positions are in fact reversed. Finally, we do not know the event to which the Tell es-Sawwan level III dates relate. It might be the end of level IIIA not the beginning. However, it does reinforce the suggestion made earlier that the appearance of Hassuna III pottery does appear archaeologically over a wide area in a broadly similar period.

Halaf II

With rare exceptions, Halaf radiocarbon dates are scattered and often of poor quality. One of the exceptions is the set from Arjoune, dated by the Oxford accelerator, from contexts V and VII. The seven dates form a statistically indistinguishable group at the 95% level of certainty whether the two contexts are considered individually or together. For the purposes of general comparisons, all seven dates have been averaged to produce a pooled mean of 4637 ± 40 . The associated pottery is largely local but with a small quantity of distinctively Halaf pottery. This Halaf pottery seems to be relatively late in date, somewhere within Halaf II (pers. comm. C. Philips). Although this dates neither the start nor end of the late Halaf, it does at least give a fixed point within it.

Other individual Halaf dates fit with the implications of the more secure dating presented above. The date from Hijara's excavations at Arpachiyah of 4980 ± 60 is credible for Halaf Ib. The dates from Girikihaciyan and Gird Banahilk have not been averaged because their relative stratigraphically positions are not clear. All but one from Girikihaciyan seem likely to date from Halaf Ila. Four dates from the Halaf levels at these sites are consistent and range from 5000 ± 45 to 4802 ± 85 . A single Banahilk date is surprisingly late at 4359 ± 78 . It seems possible, although far from certain in view of its distance from the established sequences, that Girikihaciyan dates from early Halaf Ila or even late Halaf Ib. If the transition genuinely does appear in this time range simultaneously over a wide area, as might be supported by these dates, the transition from Halaf Ib to Ila might date approximately from 4900 uncal BC. The date of 4715 ± 77 from levels 11-12 at Chagar Bazar would be compatible with its Halaf Ila/b ceramics.

The end of the Halaf period cannot be established by the internal dates. The only dates from specifically late contexts are of doubtful use. The Tepe Gawra series from levels XIX-XVII ought to give dates for the end of Halaf Ila through the Halaf-Ubaid Transitional. However the dates are very widely scattered from the impossibly early 5052 ± 82 for level XIX (P-1494) to the impossibly late 3450 ± 325 (C-817 whose extremely large standard deviation causes disquiet). The two middle dates of 4470 ± 61 and 4041 ± 72 for levels XVIII and XVII are far more credible but the whole series does not inspire confidence. The date from Arpachiyah TT6, which should date Halaf Ila, is clearly aberrant at 6114 ± 78 . The TT8 date of 5077 ± 83 also seems too early although the extreme range of its standard deviation might include a reasonable set of possibilities. These dates are on material collected twenty years after excavation and, as with the Gawra examples, are from the very early days of radiocarbon dating so their poor quality is scarcely surprising.

It is much more useful to consider the available Ubaid dates to look for a *terminus post quem* for the Halaf period. The Ubaid dates are themselves largely unsatisfactory with few sites producing large numbers of dates. The problem is increased because the correlation between the end of the Halaf phase in northern Iraq and the stages of the Ubaid in southern Iraq is not certain. An attempt will be made to consider dates from Ubaid sites in northern Mesopotamia in particular, where their post-Halaf position can be considered very likely. However, it is far from clear whether there was a considerable time lag in the Ubaid replacing the Halaf from south-east to north-west or whether the Ubaid was ever contemporary with the Halaf in a single area such as the Hamrin.

Hammam et-Turkman has only one date for the earliest Ubaid levels, Hammam et-Turkman IVa (Akkermans 1988, 129-130). This seems to be very late at 3810 ± 80 in view of the two dates from phase IVb which are statistically indistinguishable and have a pooled mean of 4160 ± 63 . As one of the level IVb dates comes from plant remains, it should be relatively closely tied to its level. Akkermans suggested a date of 4400-4200 uncal BC for

phase IVa, a date which is plausible but uncertain, especially with the latitude possible in the errors in the level IVb date.

The dates for Ubaid sites from the Hamrin come from Tell el-Saadiya (2 dates with very large standard deviations), Tell Madhur (1 date) and Tell Abada (two dates but one of 31250 ± 1250 is obviously intrusive or contaminated). These range so widely that it is very difficult to suggest a common date. The only other possibly relevant date is the post-Halaf date from Girikihaciyan of 4515 ± 100 .

There are several Halaf period dates which are later than 4500; from Banahilk, Tell Aqab and several Yarim Tepe dates). Apart from the Yarim Tepe dates, which will be discussed in detail below, these dates are individual and the error ranges could be manipulated to produce a wide range of dates. Probably all that can be said with certainty is that the transition from Halaf to Ubaid commenced somewhere between 4500 and 4200 uncal BC, possibly nearer the earlier date in view of the Hammam et-Turkman evidence.

While this appears a very large gap with very few dates, it is to a considerable extent a product of the nature of the radiocarbon calibration curve. There is a very steep section between 4400 and 4200 uncal BC where the normal relationship of radiocarbon years being notably longer than calendrical years is reversed (see fig. 5.9). For this period we would, *a priori*, expect fewer radiocarbon dates than either before or after if there is an even spread of dates in real time. Nonetheless it still leaves an uncomfortable unknown period.

Yarim Tepe dates

The set of dates from Yarim Tepe are broadly compatible with the stratigraphy of the site, with the exception of a clearly early level 3 (possibly redeposited material) and a surprisingly late level 6 date. However, compared with the dates from other sites considered above there are clear problems. The Yarim Tepe I dates from level 7 should date from the end of Archaic Hassuna. The pooled mean of 5151 ± 67 seems too late compared to the Samarran and early Halaf dates from Tell es-Sawwan and Tell Sabi Abyad. Similarly the level 8 dates, which should be relatively early, probably Halaf Ib, and the level 6 dates which, while later, are certainly not at the end of the Halaf sequence seem too late at 4716 ± 39 and 4501 ± 49 respectively (pooled means of the two level 8 dates and the three level 6 dates which are statistically indistinguishable). There are two explanations. All the dates may be from material markedly older than the level in which they were found—on redeposited material of heart wood or old timber. However, to expect so many dates to be on older material and still be internally consistent seems unlikely. It seems more probable that there is a systematic error effecting the Leningrad laboratory, perhaps in the order of 200 radiocarbon years. This would make the Level 6 and level 8 dates more comparable with similar Halaf dates and, importantly, would move the Yarim Tepe I level 7 dates back into the period between the Proto-Hassuna phase and the start of Samarran/Hassuna III pottery.

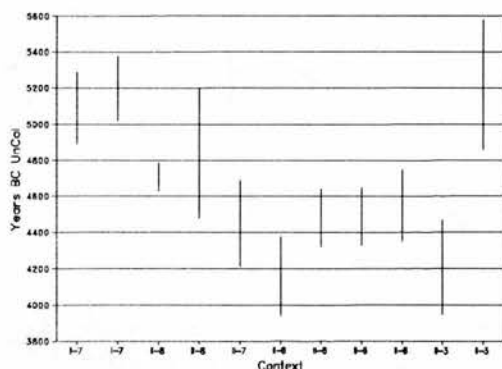


Fig. 5.8 Yarim Tepe I and II ^{14}C dates

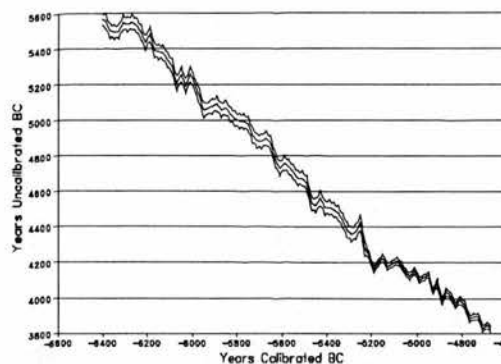


Fig. 5.9 Section of the ^{14}C calibration curve for Yarim Tepe I and II

Summary

It may be useful to summarise the conclusions reached above. It is perhaps best done in a summary graph which combines all the averaged dates from single levels of individual sites which are not statistically different (fig. 5.10).

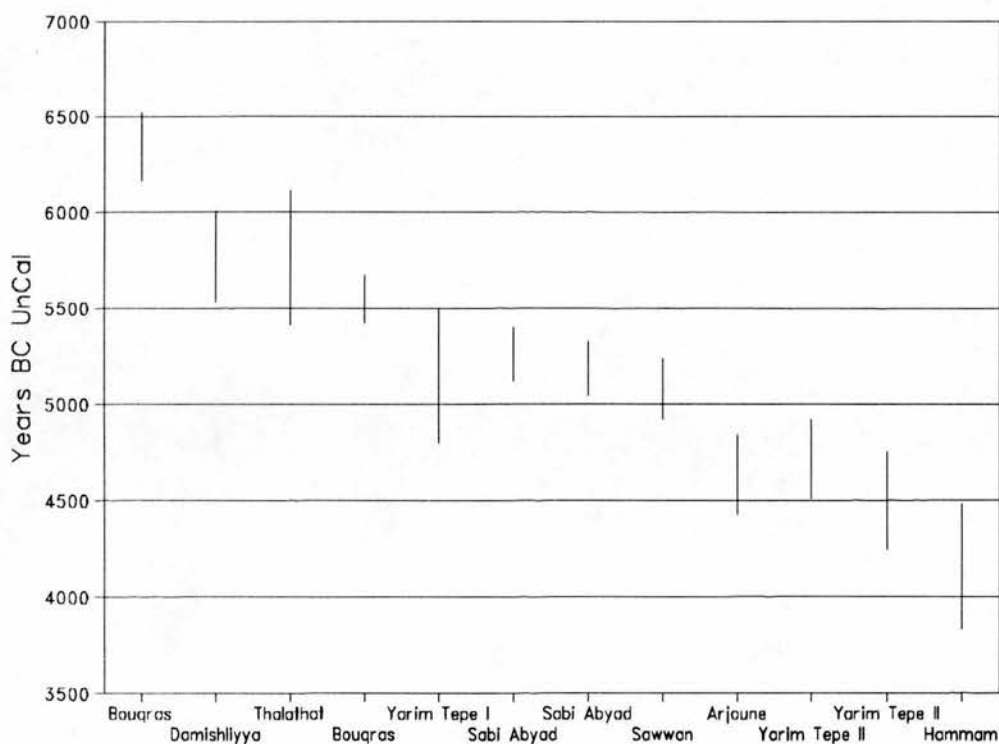


Fig. 5.10 Averaged dates from the Late Neolithic. The dates are at two standard deviations with an error multiplier of 2.3.

While one should be wary of interpreting this too simplistically, it does enable a rough chronological framework to be suggested for the relative chronology outlined above. The start of the Proto-Hassuna is unknown but the Bouqras dates suggest that it was certainly early sixth millennium and may even have started in the late seventh millennium uncal BC.

Its end may, again from the Bouqras dates, have been around 5,550 uncal BC or, in view of the number of phases which follow, slightly earlier. The next firm date is the start of Halaf Ia at Tell Sabi Abyad about 5,200 BC. Although we cannot be certain, it is possible that the start of Hassuna III/Samarran may only have been slightly earlier than this, perhaps as little as a hundred radiocarbon years earlier. The date for the start of Hassuna II is unknown. The dates from Yarim Tepe I which should tie down the end of Hassuna I appear to be affected by systematic laboratory error but we might guess at a date of around 5,400 uncal BC or so. Internal Halaf chronology is weak. The transition between Halaf I and II must have happened in the range 4,900 uncal BC and 4,700 uncal BC but it would be dangerous to be more specific. To attempt to put dates on the internal divisions within the Halaf would be pure guess-work and will not be attempted. When the Halaf ended is, again, uncertain but a date in the earlier part of the range of 4,500 and 4,200 uncal BC seems likely.

Chapter 6

Physical Environment and Subsistence Economy

The physical environment forms an inevitable backdrop to society, especially in the Near East. To some extent it constrains the potential subsistence strategies. Equally, human activities may themselves alter their surroundings. Thus the potential and exploitation of the environment is intimately connected with the cultural and economic activities of society.

Much of the area with which we are concerned lies in a similar general environment, in the broad sweep of the north Mesopotamian plain. The soils of this area have recently been described by Tony Wilkinson (1990a). In general, potentially very fertile land is widespread, even given a probably low level of agricultural technology. Although this is especially true of the northern fringe of Mesopotamia, it remains valid further south, especially along the river valleys where the soil is potentially very productive. The most important single constraint on fertility is the availability of moisture.

Northern Mesopotamia has a climate more amenable to rain fed agriculture than that in the south. The more upland areas, in the shadow of the Taurus and Zagros, have both a higher and a much more reliable rainfall. Even in the plains to the north of the Jebel Sinjar and in the Khabur head-waters, it remains sufficient to allow dry agriculture. The great potential of these locations has been emphasised by, amongst others, Harvey Weiss' study of recent agricultural yields (Weiss 1983). Farther south, the available rainfall rapidly drops towards the 250mm isohyet, the generally accepted guide for rain fed agriculture.

Perhaps more important, however, is the inter-annual variation in rainfall. Wilkinson considers that most of the area has an inter-annual variability of 25-30% (Wilkinson 1990a, 89). This means that, in north Iraq, crop failures can occur as often as two years in five south of the Jebel Sinjar and one year in four to the north (Oates and Oates 1976, 111). Over much of the area in which intensive late Neolithic inhabitation is present rain fed agriculture can have remained profitable only within a system which allows for some degree of unpredictability.

The area farther south of the Sinjar, in which considerable settlement is attested in prehistory (Kirkbride 1972, 3-4), is even more marginal, although agriculture is still

successful in some years (Kirkbride 1974, 86). At Bouqras the annual rainfall is only 125 mm per annum (van Zeist and Waterbolk 1985, 134). Similarly, on the Tigris at Tell es-Sawwan and farther south, agriculture could only have been possible with irrigation, localised flooding or, less reliably, cultivation in wadi bottoms.

The clustering of Halaf settlement on the rich soils of north Mesopotamia within the zone of higher rainfall has been noted in the past (e.g. Davidson 1977). However, Halaf settlement was not entirely confined to this area as Shams ed-Din, Umm Qseir, Tell es-Sawwan, Choga Mami and the sites in the Hamrin in Iraq demonstrate. The earlier Hassuna/Samarran settlement spreads across not only north Mesopotamia but also into central Mesopotamia. Therefore, more than one subsistence type will be encompassed in this study and more than one environmental adaptation will need to be considered. Given the position of much of the area at or beyond the edges of reliable agriculture, it is important to obtain as accurate an idea as possible of any climatic or environmental changes. Even if such changes were themselves minor, they may have had a dramatic effect on the potential of marginal areas.

Climate

Unfortunately, there is scarcely any detailed information on the prehistoric climate north Mesopotamia. There are a series of important data sets from pollen cores from the surrounding areas but it is difficult to reconcile the differences between them and to establish how relevant they are to the area they encircle. The pollen cores from Lake Zeribar, dated by radiocarbon, indicate a slower tree spread than the generally rising temperatures would permit between 8,500 and 4,000 BC. This has been interpreted as representing a drier climate (van Zeist and Bottema 1982, 278). In contrast, the Lake Van pollen cores, dated by varve counting, suggest that tree expansion began even later, not happening in significant numbers until after 4,300 BC and indicate even drier conditions (van Zeist and Bottema 1982, 279). Other southern Turkish sequences also suggest that humidity took a long time to rise to present levels, but again the evidence is contradictory (van Zeist and Bottema 1982, 281). Although the synchronisation of different sequences is difficult to achieve, these cores would indicate that, during the whole of the period with which we are concerned, the level of precipitation is lower than at present. However, the Levantine data suggests that climatic patterns are not that simple.

In the pollen cores at Ghab in northern Syria, there seems to have been a moister phase than the present between 8,000 and 6,000 BC followed by drier conditions but at Lake Huleh exactly the opposite seems to have happened (van Zeist and Bottema 1982, 282-284). Obviously such variation in the surrounding areas, perhaps compounded by dating inaccuracies in the cores, makes any general conclusions difficult. Bottema mentions recent pollen cores from Lake Bouaria, on the Syrian-Iraqi border dating back to c.5,000 BC (Bottema 1989). No details are given and the statement that they are in phase with the Zagros

and Anatolian sequence does not clarify matters. However, he does suggest that the start of sedimentation at Lake Bouaria was caused by increased run-off from the adjacent hills pointing to increased precipitation about 5,000 BC (Bottema 1989, 11).

In an attempt to reconcile the different strands of evidence, van Zeist and Bottema have suggested that there was a change in the movement of climatic depressions across the Near East (van Zeist and Bottema 1982, 293). This does have the potential to explain the apparent contradictions. They postulate that depressions may have moved in a more easterly direction than at present, giving less precipitation to south-eastern Turkey but more to north Syria and Lake Zeribar. By implication, this would include north Mesopotamia in the area of increased rainfall. When the movement changed to a more north-easterly direction (in the latter part of the fifth millennium?), present climatic conditions may have been attained. It would not, however, accord with increased precipitation at Lake Bouaria after 5,000 BC!

On archaeological grounds, Oates has suggested that the large number of prehistoric sites in the Hatra area of Iraq in comparison with later periods may suggest a climatic amelioration after 7,000 BC (Oates 1982, 367-368). The slightly smaller number of Halaf sites than Hassuna (all periods) and the much smaller number of later sites might then suggest that the climate was becoming drier in the fifth millennium (Oates 1982, 395). Apart from the possible evidence from Lake Bouaria, such increased precipitation prior to 4,3000 BC is not supported by the evidence of pollen cores.

Although no reconciliation of these different strands of evidence can realistically be attempted here, it seems possible that the evidence of botanical and faunal remains in archaeological sites may give better clues to the environment and its changes. We should note, however, two reservations. Any material found within a site has, to some extent, been selected by man. It may be very far from representative of the actual range or proportions of species. Secondly, any conclusions drawn from the evidence will, strictly speaking, only be valid for the immediate environment of the site. This could be a heavily man-modified sub-environment rather than representative of more wide-spread areas.

Faunal and botanical evidence: a survey

The data for fauna and botanical remains is surveyed very briefly below. It is often inadequate. The sampling strategies have been unsystematic and patchy, the sample sizes are frequently small and the coverage of sites in both space and time is very poor. Although there are notable exceptions amongst more recently excavated sites, where environmental and subsistence recovery has had a central place in excavation strategy, the difficulties in drawing firm conclusions from this data are considerable.

A further problem is that we do not know many of the more important details. Domestic and wild animals are often not differentiated, a problem both of the small size of samples and because the morphological changes associated with domestication were probably still not

fully developed at this date. To some extent, we have to judge whether or not a species was domesticated on the basis of probability. It is assumed that, if there is a high proportion of sheep and goat, at least most of them were domesticated. Cattle are more problematic. Wild cattle were plentiful in the area and seem to have domesticated later than sheep or goats. Pig was similarly a later domesticate but causes fewer problems because its natural environment was probably more limited to the forested river valleys.

In north Iraq, the earliest information from the aceramic Neolithic comes from Qermez Dere and Nemrik. The possibly local pistachio shells and the wild cereals from Qermez Dere (Watkins *et al* 1989, 21; Watkins *et al* 1991 25-26) suggest local woodland. This is supported by the wide range of faunal remains (Watkins *et al* 1991, 28-29). At Nemrik wild cereals were again present (Kozłowski and Kempisty 1990, 348), while the presence of antelope and gazelle point to open steppe, and animals such as red deer, auroch, wild pig and beaver indicate that mixed forest must have been accessible from the site (Kozłowski 1989, 30). Both these suggest a lush vegetation than at present. Presumably, away from the forested river valleys and more wooded uplands, the 'natural' vegetation may have resembled the shrub-steppeland suggested for the area round the Balikh and Khabur (Bottema 1989, 3) and the open savannah dominated by Pistachia and other small trees suggested for north Iraq by Guest (1966, 71-2).

The very late aceramic site of Magzaliya has both wild and domestic cereals (Bader 1989). Although both domesticated sheep and goats were present, domesticated animals made up only 40% of the fauna (Munchaev, Merpert and Bader 1984, 53). At the early Ceramic Neolithic site of Ginnig, 40% of the small faunal assemblage was made up of cattle bones with sheep/goat and gazelle also common (Dobney and Jaques *nd*). Pig, deer and equid bones were present in small numbers with fox, hare, cat, bird and small mammals appearing in very small numbers. While the sample is small and recovery unsystematic, this assemblage almost certainly indicates a more wooded environment than in recent history. Overall, it seems likely that immediately before the Proto-Hassuna, the environment in northern Iraq, at least, was not very dissimilar to the proposed climax vegetation.

In the proto-Hassuna, there is less clear evidence. By the end of the phase at Yarim Tepe I level 12, domesticated plants are certainly extensively used including emmer and einkorn, barley and pulses (Merpert and Munchaev 1987, 19). Domesticated animals predominate in levels 7 to 12, making up 82% of the faunal assemblage by number, and it must be assumed that this is as typical of levels 11 and 12 as of the later Hassuna I levels (Merpert and Munchaev 1987, 19). This is in marked contrast to the earlier Magzaliya a few kilometres to the north. At Umm Dabaghiyah, although the four main domesticates of cattle, pig, sheep and goat are present, they occur in very small numbers and most of the bones come from onegar and gazelle (Bökönyi 1973). At Bouqras goat and sheep are much more common along with some cattle (Akkermans *et al* 1983, 360). These few assemblages suggest that, except for Umm Dabaghiyah, agriculture and the herding of animals was

already the main subsistence base. The specific position of Umm Dabaghiyah will be discussed below.

Level I of Tell es-Sawwan has been suggested in chapter 3 to be broadly contemporary with the proto-Hassuna farther to the north. The faunal assemblage is dominated by sheep and goat (Abu al-Soof 1968, 12 and 15). Two different data sets were used but the percentages of domesticates are 83% and 91%, roughly in agreement with the evidence of the preceding paragraph.

As always, there is a paucity of evidence on the subsistence base of sites until late in the Halaf period. Domesticates dominate in the Hassuna I (Archaic Hassuna) at Yarim Tepe I (Merpert and Munchaev 1987, 19). The botanical remains in these levels include emmer and a large quantity of hulled six-row barley (Munchaev and Merpert 1981, 288). At Tell Hassuna, in unspecified Hassuna levels, sheep/goat predominate, and these are probably domesticated (Lloyd and Safar 1945, 248). In a very different, more upland zone, at Tell Shimshara, four out of five bone artefacts are made from red deer bone (Mortensen 1970, 58). While this does not say much for the subsistence base, it does confirm that the area was environmentally very different from more lowland zones with considerably more trees. The very small faunal sample from the Khirbet Garsour included caprovids, pig (both probably domesticated), cattle (possibly domesticated) and gazelle (Dobney and Jaques nd). This contrasts with the earlier assemblage from nearby Ginnig where gazelle and cattle are more common and a wider range of wild animals also occurs. There may have been a less diverse environment by the end of the sixth millennium. At Tell es-Sawwan (Hassuna III/Samarran) the faunal assemblage may be dominated by domesticated sheep/goat with significant quantities of gazelle (Bökönyi in Abu al-Soof 1968, 15) or gazelle may have outnumbered sheep and goats (Jarman in Abu al-Soof 1968, 10-12). In either case, it seems that hunting remained an important activity alongside herding; whether this is truly different from Tell es-Sawwan I is difficult to determine from the small samples available. In addition fish was an important resource at this site, not surprising as it is on the banks of the Tigris.

Although there is virtually no information from the early Halaf, by the late Halaf, the picture is much clearer. There is considerable consistency in the environmental and subsistence evidence in the 'core' Halaf areas. At Tell Aqab, a range of cultivated crops is present, both cereals and pulses, together with a range of field weeds (McCorriston 1989). No wild food resources are present. High numbers of *Astragalus* seeds may represent dung being used as a fuel, in the absence of trees. McCorriston has interpreted this to suggest that, in the area around Tell Aqab, natural resources had been heavily degraded (McCorriston 1989).

At Yarim Tepe II, emmer, six-row barley and two-row barley seem to have been the main cultivars (Merpert and Munchaev 1981, 290). The faunal assemblage is almost entirely domestic with sheep and goats making up the majority of the remains, 59.4% of the total number of bones (Merpert and Munchaev 1981, 301). Cattle, however, were almost as

significant in terms of the probable meat weight so that it was not necessarily a caprine dominated economy. At Arpachiyah, cultivated cereals and pulses are again prominent (Hubbard 1980, 153). Tree charcoal is almost entirely absent. The small faunal assemblage is almost entirely composed of the four main domesticates, although a few gazelle and a single onegar bone suggests some large game animals still remained (Watson 1980). The marked changes noted in the fauna in different levels are difficult to accept due to the very small samples. At Banahilk 95.5% of all the identifiable bone fragments were of sheep/goats, pig and cattle (Laffer 1983). These included both domesticated and wild examples, but the absence of large numbers of other wild food animals suggests that most may have been domesticated. The presence of animals such as red deer and brown bear indicates the presence of woods in the locality, as might be expected in this more upland and wetter area.

Pollen samples from the ground surface sealed beneath the Ubaid occupation at Hammam et-Turkman conforms with this picture. This dates from an indeterminate period before the establishment of the Ubaid in the area but it is still indicative of the changes which had taken place. The samples are characterised by very low quantities of arboreal pollen and high proportions of *Artemisia* and significant quantities of cereal pollens (Bottema 1989, 11-14). This suggests local agriculture in the virtually treeless environment of an *Artemisia*-steppe.

Although in a more arid zone than other Halaf sites mentioned, the evidence from Umm Qseir is in complete contrast. A range of wild plant foods was present, together with significant quantities of tree charcoal, something very rare at Tell Aqab (McCorriston 1989). The faunal remains at Umm Qseir also differ from most Halaf II (middle or late Halaf) sites. Less than 43% of the assemblage was of domesticated animals, the rest being largely composed of gazelle and onegar (Hole and Johnson 1986-7). This dependency on wild animals is only paralleled at Shams ed-Din. There approximately 42% of the fauna was domesticated (Uerpmann 1982). The rest was dominated by very large numbers of equid.

Discussion: Environment and the Subsistence economy

Environment

The evidence summarised in the previous section does not seem to indicate any major climatic changes. This may be a product of the scattered nature of the evidence but the potential of the environment in the past does not seem to differ radically from that of today. The apparent importance of agriculture at Yarim Tepe I, now in a zone close to marginal, suggests that it cannot have been dramatically drier in the sixth millennium than today. The possibility of it being slightly wetter does remain.

However, what is probably of far greater importance is the extent to which man modified his environment through his exploitation of it. If we accept that the first large scale settlement of the plains of the north Jezira was from the start of the sixth millennium (as

argued for north Iraq, at least, in chapter 7), the environment then may have closely resembled the climax vegetation. By the latter part of the Halaf this environment seems to have been degraded to a very considerable extent. It may even have come to resemble the modern treeless and, at times, almost barren conditions. There are a few hints that this process is already visible by the end of the sixth millennium and we may guess that it had started very soon after the settlement of the plains.

Loss of vegetation cover through clearing for agriculture or through grazing can have drastic effects on precipitation patterns and their effects. The increased loss of ground water through evaporation can lead to the complete loss of fragile soils through erosion. Both wind and soil erosion may be increased when vegetation cover no longer binds the surface. That the bases of so many tells are below the modern plain level testifies to the instability of the soils over much of the area. In extreme conditions, precipitation patterns themselves may be affected due to changing evaporation patterns and soil temperatures. Increased use of wells from some point in the Hassuna (see chapter 7) may also have had the result of lowering the water table and restricting surface water in marginal areas. This suggested loss of vegetation may be what is reflected in the sedimentation of Lake Bouaria; rather than increased precipitation there may be increased erosion. It is possible, therefore, that loss of vegetational cover may have had a very significant effect in progressively limiting rain-fed agriculture, not just in the more marginal areas, but possibly also limiting the range of potential land use in more environmentally rich areas.

The plains of northern Mesopotamia may have reached a level of vegetation not very different from today. Large wild animals which could be used to supplement domesticated food sources may have declined to a very low point. This was probably the direct result of human exploitation of the natural environment. Man's influence in changing available resources and, probably, changing precipitation patterns because of different vegetation cover may have been more important than any changes in overall climate. By the later Halaf, and possibly much earlier, an agriculture and herding based economy may have become the only practical subsistence strategy to support the density of population. With the absence of alternative sources of supply in bad years this implies, the utility of the exchange systems identified in chapter 8 in redistributing basic food resources may have become important.

The subsistence economy

The basic domestic components for cultivation were almost certainly available from the start of the period under study. In agriculture, emmer and, to a lesser extent, einkorn are present at all sites with botanical remains. Barley, either the two- or six-row forms, is also found, sometimes outnumbering emmer in analysed samples. Lentils occur throughout the period, sometimes accompanied by other legumes. In the wetter parts of the region these may have formed an important crop in rotation with cereals to replace nitrogen in the soil. Edible wild seeds and fruits are also present at some sites such as Umm Qseir. Whether their apparent

smaller quantities are indicative of a lesser importance is unknown given the poor sampling strategies and small samples.

Thus, emmer, barley and legumes formed part of the dietary basis. However, the extent to which they did so relative to meat, is more difficult to determine. Recent work on the micro-wear of teeth may go some way towards answering this as it seems possible to differentiate amongst teeth eating a mainly meat diet, a diet with many uncooked grains and a diet with large quantities of cooked grains (Molleson and Jones *nd*). At Abu Hureyra, the last category seems to appear early in the Ceramic Neolithic. Although this must remain tentative for north Mesopotamia as a whole, it suggests that, even in the Proto-Hassuna, cultivated plants may have been of increasing importance economically.

The four main domesticated animals also seem to have been known in north Mesopotamia by the start of the proto-Hassuna. Sheep and goats are certainly known before then. Domesticated pigs appear at Jarmo (Flannery 1983). Early cattle domestication is seen at Çatal Hüyük (Perkins 1969) and suspected for at least some of the cattle from Bouqras (Akkermans *et al* 1983, 361) and Umm Dabaghiyah (Bökönyi 1973). Other animals, notably onager and gazelle, supplemented these as a food source to varying degrees. The change from Magzaliya with 40% of the fauna domestic at the end of the Aceramic Neolithic to Yarim Tepe I with 82% domesticates by the end of the Proto-Hassuna may indicate that the Proto-Hassuna saw a switch to a subsistence economy based on herding animals with only a small supplement from wild resources in certain areas.

In the central areas of Hassuna and Halaf cultures in north Mesopotamia, almost all within or on the edges of the dry farming zone, this dependence on agriculture and animal herding remains the apparent economic base. The mechanisms may have changed during this time. Agricultural practices may have altered such as the balance of crops, fallow periods or ploughing. Herding strategies may also have changed. However, there is little positive evidence for this in northern Mesopotamia. There is no direct evidence of the adoption of techniques to intensify agriculture which might parallel the use of irrigation testified to at Choga Mami farther south (Oates and Oates 1977). This is as likely to be due to an absence of evidence as to a real difference between the two areas. Irrigation has been suggested in the later Halaf at Umm Qseir (McCorriston 1989) although whether this was more than use of flooded land, as has been suggested for the Balikh (Bottema 1989, 14), must await further confirmation. Other types of intensification such as the adoption of the plough, reducing fallow periods or basic crop rotation would probably be more important, in areas which are generally fertile without irrigation.

On the fringes of the more fertile, rain-fed zone, it is clear that possibilities for human exploitation of specific niches were utilised within otherwise arid environments. At Bouqras, well out of the range of rain-fed farming, domesticated cereals appear to have been cultivated both now and almost certainly in the past (van Zeist 1986). The banks of the Euphrates are too steep for direct irrigation to have been possible. Van Zeist has therefore suggested that

agriculture may have occurred in seasonally flooded areas near the river and in adjacent wadi bottoms, as occasionally occurs at present (van Zeist 1986, 143). The probable presence of riverine forest at this time (van Zeist 1986, 134), possibly associated with a greater degree of vegetation generally, may have retarded loss of ground water through evaporation. Similarly at Umm Dabaghiyah domesticated crops need not have been imported (as suggested by Kirkbride 1974, 88) but may have been grown locally in semi-brackish swamp areas which were certainly present in the area as indicated by botanical remains characteristic of such conditions (see also Oates 1982, 367-368). Again, loss of vegetation may have lowered the modern agricultural potential of this area and a low intensity of agriculture may have been possible in very specific micro-environments.

It is in these marginal areas that other, different exploitation patterns are seen. Although, again, we may suspect that the actual mechanisms and motivations have changed through time, it is not possible to differentiate between the subsistence patterns seen at Proto-Hassuna Umm Dabaghiyah and at late Halaf Umm Qseir. These sites and Shams ed-Din, marginal to the main area of rain-fed agriculture and on the edges, but not beyond, of the known distribution of sites, have a much greater quantity of wild animal remains than might be expected. At Umm Dabaghiyah they make up 89% of the fauna. At the later Halaf sites (Halaf IIa or IIb) they make up 58% of the assemblage at both Umm Qseir and Shams ed-Din.

There are several possible reasons for this pattern and there need not be a single reason for all sites. The main wild animal exploited varies; onegar at Umm Dabaghiyah, equid, probably of several types but including onegar (Uerpmann 1982, 11-24), at Shams ed-Din and gazelle at Umm Qseir. This probably simply reflects the resources available in the surrounding area but it may indicate significant contrasts. Uerpmann has suggested that, given the likely population of the site and density of onegar in the area, the effort expended in hunting them would have been much greater than the effort needed to produce a similar quantity of meat through herding (Uerpmann 1982, 45-46). He, therefore, suggested either that they were hunted by low-labour methods such as traps or, as he prefers, that the animals were attracted to the crops grown near the river and killed to stop them stealing the crops. Mass kills of migrating gazelle in March and April have been suggested to account for similar high numbers of wild animals at Abu Hureyra (Legge and Rowley-Conwy 1987) and are another potential explanation in this case.

Kirkbride suggested that Umm Dabaghiyah was a special-purpose site, devoted to killing or 'harvesting' onegar and gazelle to be exchanged with or brought back to a larger settlement (Kirkbride 1974). We have, as yet, no evidence of the Çatal Hüyük-like site proposed by Kirkbride and there are other interpretations. However, elements of Kirkbride's hypothesis are similar to the role proposed by McCorriston for Umm Qseir. This is that, given the extensive environmental degradation of much of the 'core' areas, certain important wild resources were only available on the periphery of the main settled zones

(McCorriston 1989). A further potential explanation is that the sites were simply using different subsistence strategies. For whatever reasons, meat may have been more easily available by exploiting wild animals than by herding. Restrictions imposed on agriculture may have been minimised by different precipitation patterns caused by a lush local environment or mitigated by increased reliance on meat, exploitation of wild plant foods or exchange with more central areas.

It is very difficult to use the faunal and botanical evidence to investigate the degree of sedentism in the late Neolithic. The faunal assemblages suggest that sheep and goats were important throughout. In traditional farming practice in the Near East, there is a high degree of transhumance involved in the herding of sheep and goats between the plains and higher ground where water may be more plentiful. This may either be relatively local or much longer distance. However, sheep and goats were not exploited to the exclusion of cattle and pig; indeed on meat weight, cattle may have been as important as ovicaprids at all times. Any transhumance associated with cattle is likely to have been much more local and pigs are not usually thought suited to transhumance at all (Flannery 1983). If agriculture was being practised intensively, it may be more likely that elements of the population would have remained to tend the crops for a large part of the year. We may suspect that some, but not all, elements of society were transhumant for at least parts of the year. The extent of these elements and any changes during the period under study are, unfortunately, impossible to assess.

The recent analysis of the subsistence basis of Halaf society in the Balikh valley by Akkermans (1990) may, in many regards, be applied across north Mesopotamia. It uses essentially the same data as is available in this study and makes extensive use of ethnographic data to study the potential land-use in terms of labour input and economic returns. Although the poor nature of the evidence with which we are working must be stressed, his conclusions are very relevant. He suggests that, while there is no evidence that all excavated Halaf sites were not in year round occupation, different settlements may have fulfilled different roles (Akkermans 1990, 264-268). The subsistence patterns of the larger, longer-lived sites may have been based on agriculture in conjunction with herding. The shorter lived sites, perhaps with only a few houses at any one time and repeatedly abandoned and re-occupied after short periods, may have depended far more on herding. In this latter type of site, Akkermans includes Khirbet esh-Shenef and Damishliyya in the Balikh as well as Arjoune, Kharabeh Shattani, Umm Qseir and Shams ed-Din. The relations and inter-dependencies between the two types of sites remains to be elucidated as do the conditions which caused some settlements to be short lived and others to be the basis for continuous and lengthy occupation. Similarly, it is difficult to know to what extent it may be applicable earlier. Certainly there remains a dichotomy throughout the Hassuna between small, low sites, detected in survey but unfortunately unexcavated, and larger longer-lived sites such as Yarim Tepe I and Tell Sotto.

Chapter 7

The Organisation of Space

This chapter discusses material concerning the utilisation of space in two spheres; the distribution of settlements across landscapes, and the type and distribution of buildings within settlements. In many ways these are very distinct matters and have different problems and potentials. They do, however, share one characteristic. Although we can only observe them very imperfectly, both directly reflect the way in which late Neolithic society chose to organise itself in space and may provide information on the nature of that organisation.

Settlement distribution

Since the 1960s the location, examination and analysis of sites based on systematic area survey has become a standard research technique in many areas of the Near East. Although the early studies were based in southern Mesopotamia and south-western Iran where the utility of the technique was demonstrated (e.g. Adams 1965; Adams and Nissan 1972; Adams 1981; Johnston 1973), it has become increasingly important in north Mesopotamia as well (Oates 1980; Meijer 1986; Akkermans 1990; Algaze 1989; Algaze *et al* 1991; Wilkinson 1990b). Although several, the earlier examples in particular, were undertaken purely for research, many of the more recent ones have taken place in the context of rescue archaeology and have involved the survey of large areas where the archaeological landscape was threatened by flooding, by dam programmes or by agricultural improvements. Indeed, in many areas complete categories of site are unlikely to last beyond the next few decades, underlining the pressing need for such work.

The range and methodology of field surveys has varied greatly. This can make it very difficult make comparisons between different areas. Survey, which is not based on a systematic examination of an area but relies on fortuitous location of sites, may be useful in evaluating the range of periods of settlement and the major sites. It is bound, however, to fail to locate many sites and without systematic collection on different areas of the sites it is difficult to be sure of the range of periods present on a site and the areas of their occupation. Even more important, without intensive survey, sites lacking prominent mounds may be missed. Thus, a specific category of settlement may be omitted entirely.

There are further severe limitations even when prehistoric sites are located. In particular, estimating the total size of a settlement from surface remains is hazardous where there is later occupation, as is almost always the case with larger sites. Often the existence of central sites has had to be inferred from the presence of prehistoric ceramics at sites in geographically important locations which were of major importance in later periods. Thus Oates has suggested that several 'bridgehead' sites such as Nineveh, Erbil, Brak, and Tell Halaf were already major sites in the Halaf (Oates 1972, 299-300). Although this is plausible, it is difficult to prove this interpretation. A useful example is provided by the survey in the Khabur head-waters carried out by Edinburgh University, which located 19 Halaf sites (Davidson and McKerrell 1976, 48-49). The largest of these is the later central site of Chagar Bazar. As it is known to have been a pottery producing centre for the surrounding area in the Halaf, it seems reasonable to suggest that it may have been a population centre as well. However, Davidson specifically notes that the Halaf occupation was restricted to one particular area on the main mound leaving the possibility open that the total Halaf occupation was quite limited in area (Davidson 1977, 17).

In general, survey sites must be dated by the ceramics on the surface. With the prehistoric periods, this is not always a very precise chronological marker. There seems to be good evidence that many sites were only occupied for small sections of a total period. The movement between sites may have been considerable over different periods. The Halaf period, for instance, is usually taken as a single chronological phase in surface surveys (e.g. Meijer 1986; Algaze *et al* 1991; Wilkinson 1990b). The period in which this pottery occurred may have been 700 or 800 years long. During this time-span, a social unit may have moved its location several times, producing evidence of occupation at several sites. If portions of these same social units were transhumant or nomadic to any degree, they may even have left occupation remains at several sites concurrently. This clearly makes assessments of overall population density almost meaningless. Although this problem cannot be removed, it can be limited if as much attention as possible can be taken to identify individual phases within Halaf ceramics and date the occupations at a site as precisely as possible. In general it has been possible in survey material to divide the Halaf occupations into two main groups (Halaf I and II) and sometimes into five sub-groups (Halaf Ia and b, IIa and b, Halaf-Ubaid Transitional) which at least restricts the time range in each group to 400 years or at best about 200 years. The greater detail revealed by these divisions is considerable; a comparison of the distribution of Halaf I with that of Halaf II sites (figs. 7.5 and 7.6) is indicative of the potential loss of information if the Halaf were considered as a monolithic entity.

The North Jezira Project Survey

Because of these problems of intercomparison between surveys, much of the discussion here will be based on the survey carried out by Tony Wilkinson in the Iraqi north Jezira in advance of major irrigation developments which have already severely damaged the settlement remains and, if completed, will destroy very large parts of it (Ball *et al* 1989; Wilkinson 1990b; Wilkinson forthcoming). Although, like any survey, the recovered data is not perfect, there are several advantages in using this as the base. A considerable area was covered and the quality of cover was unusually high. Most importantly, the collected sherd material was available to the author in its totality while the survey was in progress, which enabled particular sites to be re-examined in the field. As well as more rapid methods, sites were detected by extensive field walking, including transects between known sites in which sherd densities were counted which should allow detection of flat sites by the increased quantity of sherds on the surface (indeed the early Ceramic Neolithic site of Ginnig was detected in this way). In addition, monitoring the cutting of irrigation canals offered the possibility of controlling the sample for sites which were not visible on the surface. I was able to analyse the sherds alongside the main survey processing which allowed me to record and categorise the sherds according to the procedures and interpretations presented in chapters 2 to 4. With the cooperation of Tony Wilkinson, sites which had produced significant quantities of late Neolithic pottery were revisited to increase the sample sizes and improve the definition of the area occupied. On a few sites, which had been badly damaged by the irrigation canal construction, it was possible to obtain large samples of a type which could, under normal circumstances, only have been obtained from small excavations or soundings.

The total area of the section of the survey on which this analysis is based is approximately 375 km². The north Jezira in this area is almost entirely flat. It is drained by a series of wadis joining into the Wadi al-Mur which runs across the plain from west to east, eventually reaching the Tigris. None of these wadis are currently perennial. The soil is fertile and, given good rainfalls, produces high yields. The average rainfall is 300-400 mm (Wilkinson 1990b, 51), well inside the limits for dry agriculture but the inter-annual variability is still quite high with crop failures occurring 1 in 4 years (Oates and Oates 1976, 111).

The pottery was analysed in detail from all sites with significant traces of prehistoric occupation (34 sites). There are a few sites where Tony Wilkinson recognised Hassuna or Halaf pottery which were not re-examined because the quantities of pottery seemed too small to date the sub-phases reliably (12 sites). These are referred to in table 7.2 as general Hassuna and general Halaf, and on the maps in figs 7.2-7.6 these sites are marked as having occupation of the general period. A number sites in the north-west of the survey area were not surveyed until after I had completed my analysis (18 sites). Again these are recorded as being general Halaf or general Hassuna according to the phasing of the main survey.

Site Dating

The sherds from each site were analysed by rather general types based on the main diagnostic types outlined in chapters 3 and 4. This allows broad but reliable divisions into Proto-Hassuna, Hassuna I, Hassuna II/III, Halaf Ia/b and Halaf IIa/b. Although this is better than the normal survey division into Hassuna and Halaf, it is still not ideal. All diagnostic sherds were described and each was drawn or sketched so that a finer classification could be applied to the data in the future. The basic record of the different sites is presented in tables 7.1 and 7.2 with the periods of occupation.

Site	Area (Ha)	P-Hassuna	Hassuna I	Hassuna II/III	Halaf I	Halaf II
1				?		O
19	0.17	O	O	O		?
26	2.61		O	O		
27	1.34	O	O			
30	1.32					?
32	1.24			O		
33	0.20	O		O		O
39	0.47			O		
45	1.62			O	O	O
48	0.31					?
54	0.43			O	?	
62	0.33			O	O	?
66	1.35	?			O	O
68	2.30	O		O		
72	2.29			O	O	O
81	1.70		?	O	O	
84	0.75					O
89	1.75					O
94	1.20			O		O
96	5.37			O		O
97	0.98			O	O	
98	1.48				O	O
103	0.80			O		O
112	1.61			O		
114	2.08		O	O		
117	1.09	O	O	O		?
119	0.80	O				O
123	1.76					?
130	3.22			O		
133	1.66	O	O	O		
134	1.72	O				
138	0.44	O				
139	0.80		O		O	
140	0.71			O	O	?

O = definite occupation

Hassuna I = Archaic Hassuna

Halaf I = Traditional Early Halaf

? = probable occupation/ephemeral occupation

Hassuna II/III = Standard Hassuna/Samarra

Halaf II = Traditional Middle/Late Halaf

Table 7.1 Summary of North Jezira Project survey sites examined by the writer

Some of the ceramic phases proposed in chapters 3 and 4 cannot be detected with confidence on the basis of surface pottery as they depend on the relative quantities of different types of pottery rather than on the simple presence or absence of certain types. Thus Hassuna II and Hassuna III (Samarran) differ principally in the proportion of incised to painted decoration. Where both occur in a surface assemblage, it is rarely possible to be certain that they come from a particular phase. The pottery of these phases presents a further problem regarding the consistency with which they were collected in the field. Diagnostic sherds with visible decoration or from a recognisable part of the vessel were collected. Body sherds with no visible

Site	Area (Ha)	General Hassuna	General Halaf
9	8.38	?	O
20	7.85		O
42	11.03	?	O
53	1.73	?	
75	4.12		?
78	1.16		O
83	5.73		O
85	1.29		O
86	1.43		O
88	0.78	O	
111	6.00		O
131	1.12		O
145	3.91	O	O
147	1.96	O	
149	0.78	O	O
150	1.18	?	O
152	1.40	O	
153	0.70		O
156	8.66		O
157	3.15		?
162	4.13	O	O
164	0.78	O	
165	1.34	?	
168	.50	?	
169	.78		?
170	.78	O	?
172	2.24		O
174	5.14	?	O
179	2.21	O	?
181	.52	O	

O = definite occupation

? = probable occupation/ephemeral occupation

Table 7.2 Summary of North Jezira Project survey sites Not examined by writer. Based on information from T.J. Wilkinson (forthcoming)

decoration were not routinely collected. It is, therefore, possible that sherds with painted decoration, which occurs on or near the rim, were likely to be better sampled than incised Hassuna sherds, where the decoration frequently appears on body sherds. This may account for the relatively low numbers of Hassuna incised sherds.

Similarly, with Halaf Ia and Ib, much of the same pottery is present in both phases. The suggested distinction between them concerns the quantities of straight sided bowls and horizontal cross-hatched bowls. Again, only in a few cases, notably NJP 72, can we be certain which phase is represented. At present, Halaf IIa and IIb are reliably distinguished to a considerable extent only on the presence of specific types. Even in Halaf IIb these types are very much in the minority and distinguishing these phases in survey material is hazardous. For the record, only NJP 33 produced a sherd of bichrome pottery but, since bichrome appears to make a limited appearance even in Halaf IIa, we cannot confidently state that this site was occupied in Halaf IIb.

On the distribution maps (figs 7.2-7.6), sites at which there are unambiguous indications of occupation during a period are identified as definite sites. Where the ceramic evidence is ambiguous or where there are less than four sherds of the period, occupations are identified as just probable.

Despite the problems, the dating of the sites from surface remains is of a higher resolution than in most comparable studies, except the Balikh valley survey (Akkermans 1990). It also has the advantage that, although the absolute dates remain ambiguous, it seems reasonable to suggest that each of the phases recognised in the survey is of approximately the same duration, some 250-350 radiocarbon years. This is important when considering relative site densities.

Specific Problems

Several specific aspects need to be considered in discussing these results. Despite the good controls possible in this survey, the sites at which prehistoric settlement were detected must still be a partial record. Many sites of ephemeral cultural activity have probably been lost through even the relatively non-intensive agriculture carried out through the intervening millennia. Although the disappearance of sites through alluviation does not appear to be a major problem, it seems certain that many other prehistoric sites are buried beneath later mounds and very few sherds remain on the surface to be discovered. Tell al-Hawa, the largest tell in the plain and subject to the most detailed survey by David Tucker (in Ball *et al* 1989), is a good example. Out of 4,300 sherds sampled on the surface of the tell, only three were Halaf although another five were later added to this. This is certainly enough to suggest a Halaf presence at the site but would probably not have been detected during a briefer survey. As the sherds come from a specific point relatively high on the mound, this Halaf occupation may have been on a considerable scale. Even less easy to detect and interpret were the two Hassuna painted sherds found close to the summit of the site (Ball *et al* 1989, 28;

Ball 1990, n.2). Do these sherds represent a Hassuna III occupation of the site, only reaching the surface by a long process of successive disturbances in lower strata? Or have they reached the site by different means (perhaps being dropped from the pockets of careless archaeologists is as likely an explanation as any)? This is a point of considerable importance in this instance as Tell al-Hawa has demonstrably much the largest Ubaid settlement in the area at 15 ha (Ball *et al* 1989, 31). If the Halaf is truly coming from a substantial settlement buried within the later tell, the same might be true of the Halaf and, if the Hassuna sherds really do indicate settlement at that time, of even earlier periods. A possible indication of the scale of this problem is the apparent lack of late Neolithic sites around Tell al-Hawa. This is in an area in which medium sized tells of later periods appear to form satellite settlements round Tell al-Hawa and may obscure the prehistoric settlements (Wilkinson 1990b, 55).

A further warning of the difficulty in analysing the underlying strata from surface remains comes from Tell al-Botha, NJP 19. Here the prehistoric mound (NJP 19D) was sampled on two occasions, once by Tony Wilkinson and once by the writer, before it was excavated by the Department of Antiquities of Iraq. These surface collections included a small amount of Halaf painted pottery and Standard Hassuna painted and incised pottery and large quantities of definite Archaic Hassuna painted pottery. No definite earlier or later pottery was found. In the subsequent excavations, from which I examined almost all the pottery, the top 0.50 m were Standard or possibly Archaic Hassuna. The other 2 m of the site were all Proto-Hassuna in date with very small quantities of painted pottery. Almost all the surface sherds came from the very uppermost, eroding levels rather than the thicker, lower levels. In fact this problem is especially serious to sites with early Ceramic Neolithic or Proto-Hassuna. Low-fired, coarse pottery does not survive well on the surface of a site. Both abrasion and the slow dissolving action of water will quickly turn diagnostic sherds to undiagnostic sherds by removing surface paint and edges, and will eventually destroy sherds altogether.

Early Occupation

Only one of the sites in the plain could be dated to before the Proto-Hassuna. This is the early Ceramic site of Ginnig (Campbell and Baird 1990). This site rose approximately 50 cm above the height of the plain but another 1.5 m had been covered by a localised alluvial fan. The lower levels of the site were only tested in a small sounding and, although they appear to be aceramic, this cannot be considered conclusive. The only other hint of material from before Proto-Hassuna came from chipped chert balls of unknown origin from the vicinity Tell es-Samir which were given to the Department of Antiquities by a shepherd. Such artefacts occur at Ginnig (Campbell and Baird 1990, 76) and are common at Jarmo (Moholy-Nagy 1983, fig. 129, 11) and Nemrik (Kozłowski 1989, fig. 5). They seem to be rare in the later Neolithic, although some do occur at Shams ed-Din (Seeden 1982, figs 33-35), and these examples may, therefore, indicate an unlocated site of early date.

Whether there are additional undetected sites or not, it is clear that early settlement of the plain is very restricted. It is noteworthy that, at the moment, the known Aceramic Neolithic sites do not occur in the open plain in northern Iraq. Nemriq and M'lefaat occur on the boundaries between river valleys and the open plain. Magzaliya and Qermez Dere are located in the foothills on the edges of the Sinjar plain. It is probable that the plains were exploited from these locations, perhaps through a series of very temporary camps which are unlikely to be preserved. With the Proto-Hassuna, it does seem clear that there was a major change in the nature of human exploitation of the plains. Although this could have had multiple causes, one may have been changes in the subsistence basis. Cultivated cereals might have become a more important resource as may the herding of domesticated animals. This may be supported tentatively by the decline in the importance of wild animals between Magzaliya and the lowest levels of Yarim Tepe II. Equally, the move may have been facilitated by early hydrological developments. The well from Khirbet Garsour described in appendix A is unlikely to have been the earliest one. Indeed, there were a series of scoops visible in the side of the canal which ran along the edge of al-Botha (NJP 19) in which water had lain. Although these are undated, they could be associated with the Proto-Hassuna settlement. The use of artificial water holes would have greatly increased the range of environments in which year round settlements could have been established.

Proto-Hassuna

In contrast to the single early Ceramic and possible Aceramic site at Ginnig, there are nine or ten Proto-Hassuna sites, all small in area and height. A figure for the raw site densities is likely to be very misleading but for this period there is only one site for approximately every 37 km². Although this is an obvious increase on preceding periods, the sites are clustered in the centre and south of the survey area. To some extent this may be a result of the general lack of visible prehistoric sites around Tell al-Hawa and because little pottery from the north-west portion of the survey area was studied by the writer. However, this seems unlikely to account for the distribution entirely; it certainly does not affect later periods to such an extent. There appear to be two groups of sites, one along the Wadi al-Mur and the other in the south-west of the area, again clustered around a wadi system. It is at least possible that these groups represent two separate social units which shifted their settlements at intervals during the Proto-Hassuna within separate territories based along a water source. This must remain an hypothesis but it does suggest the possibility that the real density of settlement in the plain was actually much lower than the raw number of sites suggests.

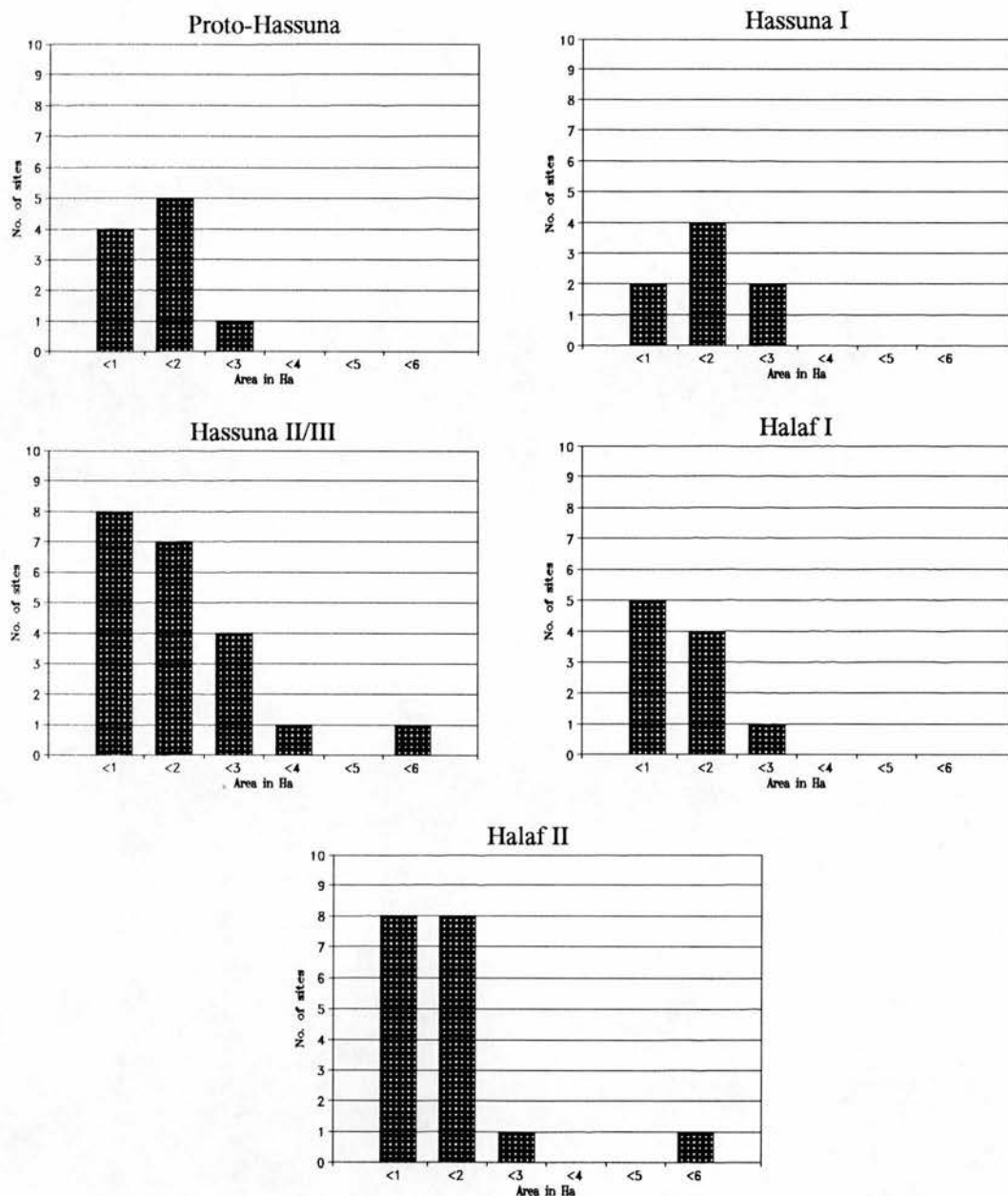


Fig. 7.1 Frequencies of site sizes in the North Jezira Project survey. The exact areas are the apparent surface area of each site and are very approximate

Nonetheless, it seems clear that the density and intensity of settlement, even if of a transitory nature, was much greater than in preceding periods. There must have been a considerable population increase in or immediately prior to the Proto-Hassuna. There seems to be confirmation of this in Kirkbride's survey to the west of Hatra (Kirkbride 1972). Proto-Hassuna sites also appear common in the Rimah area where Tell Sotto, Kultepe and the lowest levels of Yarim Tepe I all date to this period. Surveys from outside Iraq suggest radically different patterns but as this is of a wider relevance in the Hassuna, it will be discussed at the end of the section.

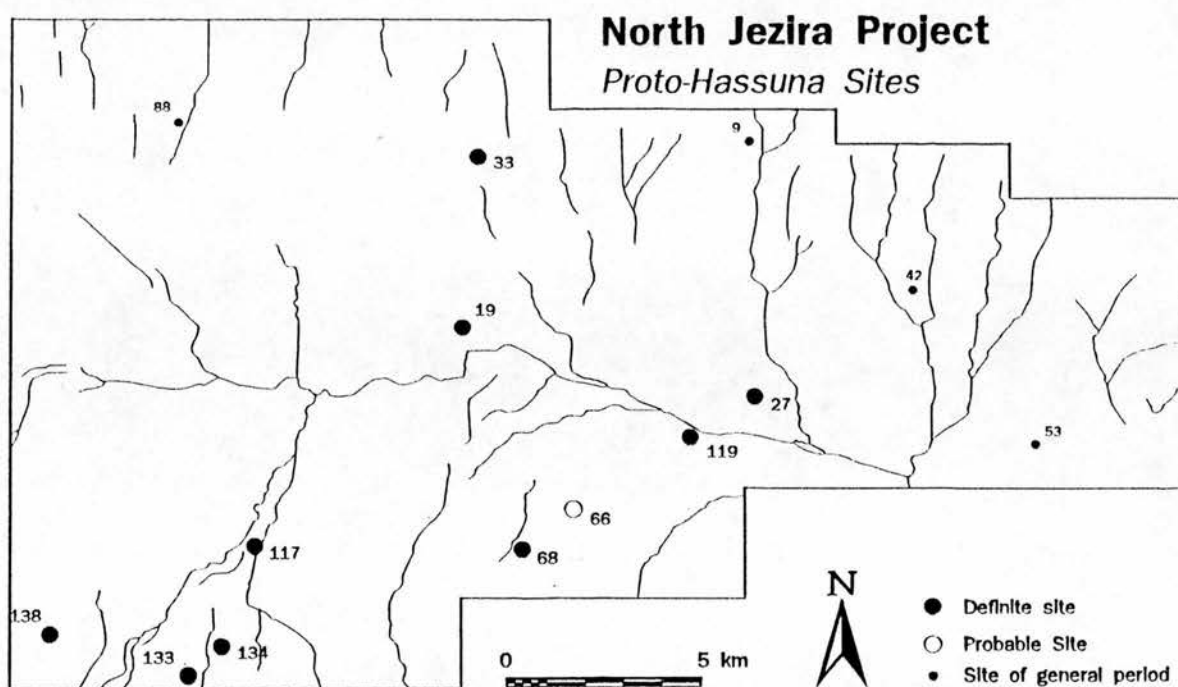


Fig. 7.2: Distribution of Proto-Hassuna sites in the North Jezira Project Survey

This population increase in the early sixth millennium has parallels elsewhere. Hole and Flannery suggested a doubling of population at this time in the Deh Luran plain (Hole and Flannery 1967, 188). Smith and Young have postulated a general population explosion in greater Mesopotamia and that the period saw an expansion of settlement into all environmental zones (Smith and Young 1972, 42-3). In the Balikh, the main population growth seems to have occurred towards the end of the millennium (Akkermans 1990, 187-188) but this is in the context of an area where the seventh millennium occupation may have been already relatively high (Akkermans 1990, 186) and demographic patterns different.

Molleson and Jones have argued from the evidence of tooth wear and skeletal populations at Abu Hureyra that the use of pottery facilitated the cooking of grains, allowing their use as a weaning food and leading to the potential for large-scale population increase as the inter-child interval was decreased (Molleson and Jones, forthcoming). Hypothetically, this could be a factor in the north of Iraq where the population growth does coincide with the use of well-made pottery.

Hassuna I (Archaic Hassuna)

At least seven and probably eight sites with Archaic Hassuna pottery were located in the North Jezira Project survey area, four of them also occupied in the preceding phase. The pattern of settlement is almost identical to that of the Proto-Hassuna. The division of settlement into two groups is even clearer as are the large areas of the plain that appear to

have remained unsettled. Again this suggests rather non-intensive methods of economic exploitation as well as rather low settlement densities. Although site density figures are very speculative for all the periods under study, the range of site densities, in the unlikely event that all the sites were simultaneously occupied, is one site every 31-54 km².

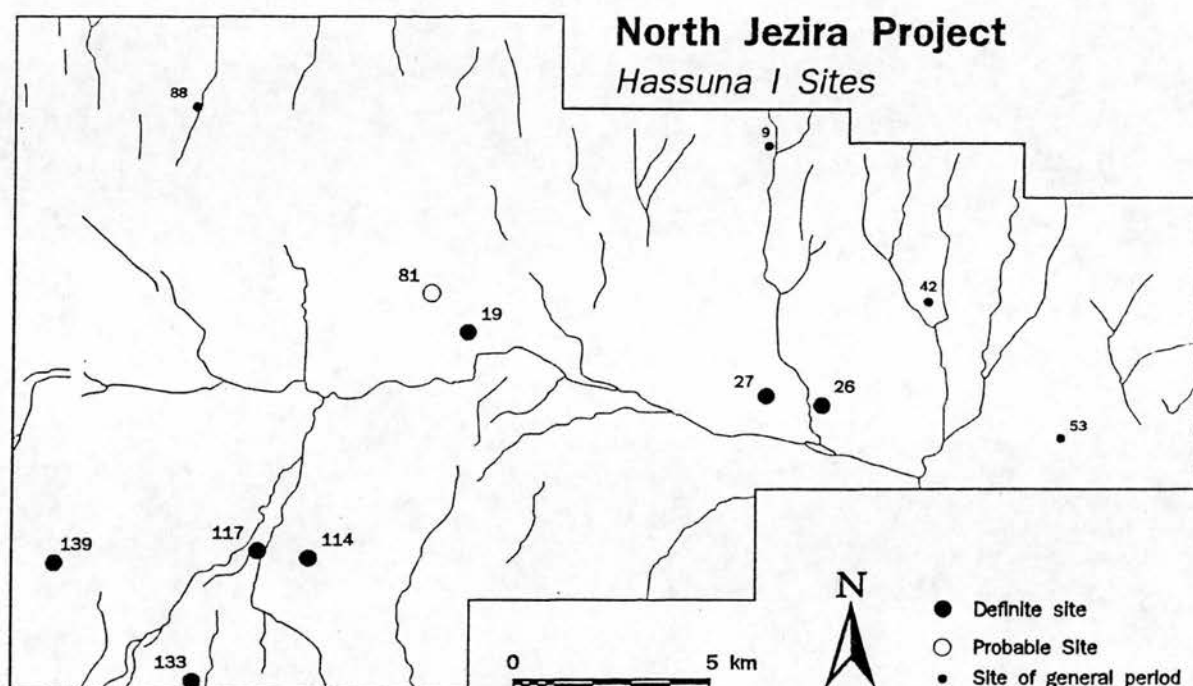


Fig. 7.3: Distribution of Hassuna I sites in the North Jezira Project Survey

Hassuna II/III

In total, 22 sites showed signs of being occupied in the Hassuna II/III period; only with Tell al-Hawa is there any doubt. Making allowance for the masking effect in the Tell al-Hawa region and the less intensive study of the pottery in the north-west, settlement now appears evenly spread across the plain. The raw site density is one site every 14-17 km². This sudden expansion tends to confirm that the restriction of earlier settlement is genuine. There also seems to be a slight rise in the size of settlement, although it should be noted that the Hassuna occupation at NJP 96 certainly did not cover the full 5.37 ha of that site. The increase in the number of sites is dramatic and, on its own, could plausibly be interpreted as an increase in population, possibly accompanied by an intensification of the economy. However, as the number of sites declines again, equally rapidly, in the following phase, a wider range of interpretations should be considered.

It seems very unlikely that the changes are artificial, simply a product of the survey methodology or the ceramic analysis. Both Archaic Hassuna sherds, the main diagnostic for

Hassuna I, and Halaf I sherds are relatively recognisable. Small numbers of Standard Hassuna Incised sherds may appear in Hassuna I and small numbers of Standard Hassuna Painted sherds still appear in Halaf Ia context. However, as a percentage of the total assemblage these are very small and, again, it seems unlikely that they would lead to problems of this degree.

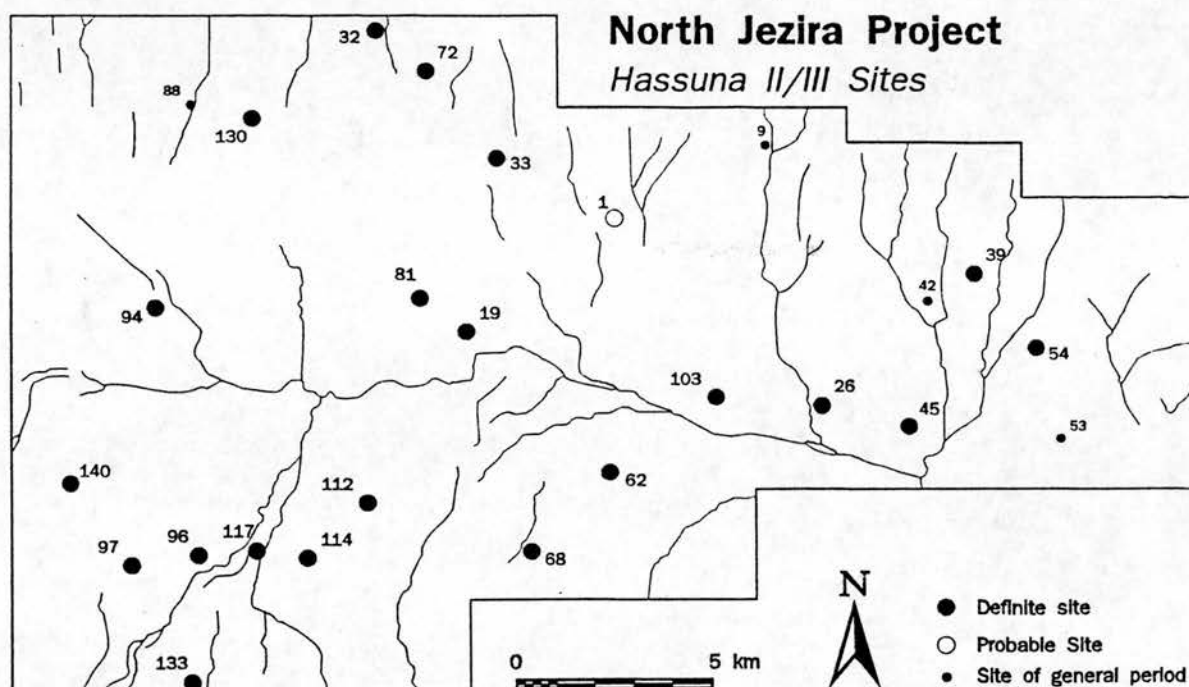


Fig. 7.4: Distribution of Hassuna II/III sites in the North Jezira Project Survey

If, therefore, the perceived increased number of sites is real, there are several potential explanations. There may be a greater number of settlements at any one time, reflecting either a generally smaller settlement size (which seems unlikely) or an increased population. If the first extensive use of artificial water-holes or wells occurred in this phase, as suggested by Khirbet Garsour (see appendix A), a much higher and/or more permanent exploitation of the plain may have been possible. Alternatively, there may have been an increase in the mobility of settlements during this phase; the same number of sites being occupied at any one time but moving very frequently, possibly reflecting a changed economic pattern requiring more special purpose sites. One possible clue lies in the continuity and contemporaneity of occupation.

The validity of looking at the continuity of settlement in this area and at this degree of chronological resolution must be viewed with some reservations. Because a site shows evidence of pottery from successive chronological phases, it does not automatically mean that there was continuity of settlement. The site may have been occupied at the beginning of

one phase and at the end of the next, as much as 500 years later. The settlements may have simply re-occurred at a desirable site. Nonetheless, it is interesting to note that 13 out of the 22 Hassuna II/III sites were also occupied in the Hassuna I or Halaf I phases. All but four sites occupied in Hassuna I or Halaf I were also occupied in Hassuna II/III. However, despite this apparent and possibly illusionary continuity, only one site, NJP 81, seems to have been occupied in Hassuna I and Hassuna II/III and Halaf I. As a contrast, four sites show traces of occupation at some point in each of Proto-Hassuna, Hassuna I and Hassuna II/III while three sites have potential continuity from Hassuna II/III through Halaf I into Halaf II. This pattern is striking and suggests as a reasonable hypothesis that, in this area, there was a marked discontinuity in settlement patterns within a ceramic phase rather than between ceramic phases.

This hypothesis could support several elaborations. A further conceivable hypothesis would be that different ceramic styles were in use at different sites contemporaneously. Hassuna II/III pottery may have been used at one site at the same time as another site was still using Hassuna I style pottery or, later, Halaf I style pottery. Although this has been suggested for this period elsewhere (Watkins and Campbell 1987; see also Oates 1983) this would be a remarkably small area in which it was occurring. If true, it would suggest such a marked use of ceramic style to emphasise differences as to suggest that there were very real and conscious differences amongst the groups in the area. If most of the Halaf I sites were contemporary with Hassuna III sites, this hypothesis would also have the benefit of lessening the apparent rapid growth of settlement in Halaf II in the survey area. It does, however, remain extremely speculative.

Alternatively, the increases and decreases in settlement frequency may indicate that the relative lengths suggested for each of the phases is in error. If the Hassuna II/III period was significantly longer than either the Hassuna I and the Halaf I phases, the seemingly increased number of sites may be illusionary. If the locations of settlements were changed at a constant rate and we assume that the Hassuna II/III phase was twice as long as those on either side (say, 400 years as against 200 years, which would be at least conceivable on the present data), we might expect twice as many sites in Hassuna II/III as in the preceding or following periods.

Halaf I

Only eight or nine sites have clear evidence of Halaf I occupation. These are all small (less than 3 ha) but appear over most of the survey area, unlike the comparably sparse settlements of the Proto-Hassuna and Hassuna I, which confirms the definite change noted in Hassuna II/III. It is conceivable that the number of sites is under-estimated since it is often not possible to identify an early Halaf site from only a very few sherds at a site with Halaf II occupation; most Halaf I types can occur very rarely in later contexts. Nonetheless, it is unlikely that sufficient sites were missed because of this to balance the settlement densities

and the problems of interpretation raised in the preceding section remain. The raw site density is one site every 20-42 km², with the lower figure very unlikely as it includes all the site of the general Halaf period, many of which are almost certainly not Halaf I in date.

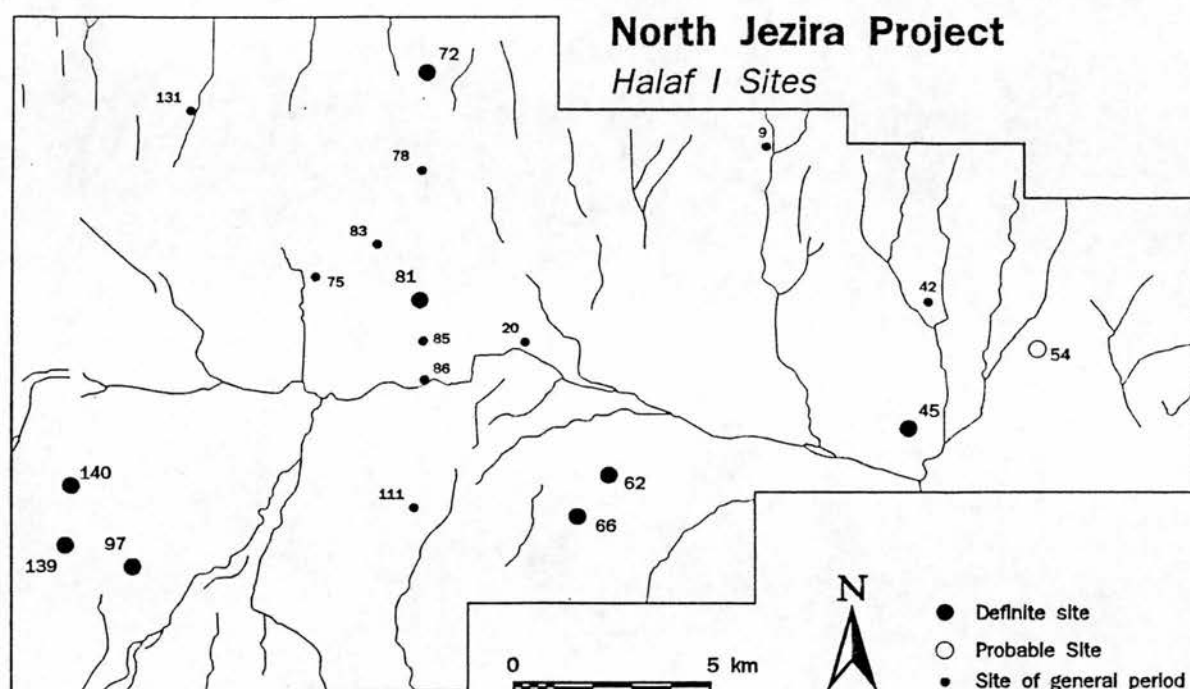


Fig. 7.5: Distribution of Halaf I sites in the North Jezira Project Survey

Halaf II

A total of 13 definite Halaf II sites are present along with six further likely occurrences. In addition, the ten additional sites Wilkinson recorded as having Halaf occupation, marked in the distribution map as sites of this general period, are much more likely to be Halaf II than Halaf I. The raw site density is one site every 13-29 km², this time with the lower end of the range more probable. Here, the increase in site numbers seems to be real as it is continued in the following Ubaid. For the first time there seems to be a possibility of detecting a site hierarchy in the survey area. Halaf pottery appears quite high on the main mound of Tell al-Hawa, suggesting the possibility of a substantial Halaf occupation. More tangible is NJP 96 which is perhaps worth discussing in more detail.

Apart from Tell al-Hawa, NJP 96 is the only instance of a high mound in the area, a substantial portion of which may date from before the Ubaid; NJP 89 is another candidate but most of the mound appears to be Ubaid in date. NJP 96 consists of two elements which together cover 5.37 ha. There is a high mound at the north-west of the site, approximately 13 m high. Although there are Ubaid sherds present on most of the surface of the mound,

many of them may have originated higher up the tell. Halaf sherds occur in significant numbers as high as 3 m below the summit and, as migration of sherds in quantity up a mound is unlikely, this suggests a very substantial Halaf mound. The rest of the site is a much lower area to the south and east with a considerable quantity of later occupation which is not visible on the high mound. In addition, there are sporadic occurrences of Halaf sherds. These may simply have travelled from the main mound but they may also represent buried Halaf occupation over an area of 4-5 ha.

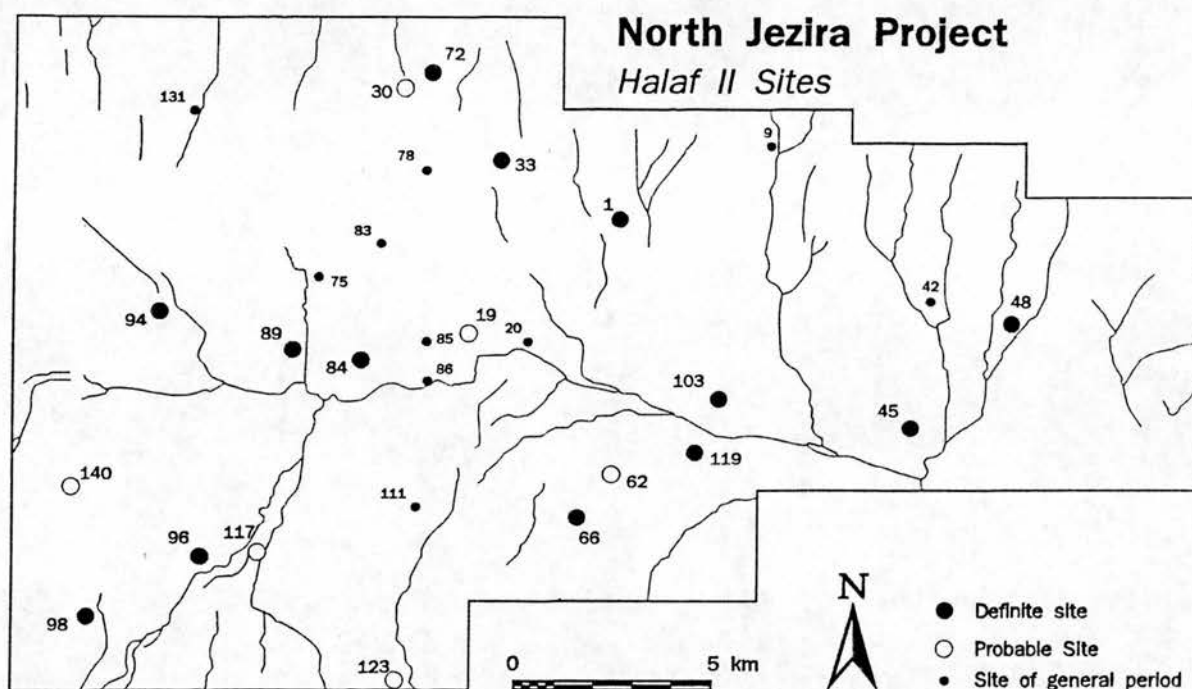


Fig. 7.6: Distribution of Halaf II sites in the North Jezira Project Survey

Thus, NJP 96 may represent some type of population centre. Many of the other sites are very small and low mounds. These presumably represent sites which were occupied in a less intensive manner over shorter periods, perhaps only for parts of the year. Excavated sites of this type include Kharabeh Shattani, Umm Qseir and Khirbet Shenef, the position of which will be discussed below.

Within Iraq, it is difficult to find good comparable data for the Halaf. Hijara assembles information from several sources to give distribution maps for the Halaf in north Iraq (Hijara 1980). The sources used for this are, however, very variable. Except for the sites in the Tell Rimah area, for which the absence of detailed accounts of the pottery and site sizes make it difficult to use further, they are based on many different studies, which may have had a greater or lesser ability to distinguish sub-phases, and a varying concern with defining the area of occupation at any one period. It is unclear whether any of them represent a

comprehensive account of Halaf settlement. Therefore, Hijara's suggestion that there are groups of Halaf sites centred round a major, central site is both plausible and interesting but, at present, must remain an hypothesis. In the Sinjar, there were 23 Hassuna/Samarran sites compared to 35 Halaf sites (Oates 1972, 300, 307). The raw settlement densities in this area are broadly comparable with the area to the north of the Jebel Sinjar but, given the problems in assessing the number of sites occupied at any one time, this fact is of uncertain value.

Syria and Turkey

Surveys have been carried out in the neighbouring areas of Syria and Turkey. Meijer's survey in north-east Syria is geographically very close to that of the North Jezira Project. Surprisingly, it has produced very little identified pre-Halaf occupation and only one husking tray fragment suggests an Hassuna presence. Equally the survey in the Cizre-Silopi plain, on the Iraqi-Turkish border along the Tigris, ought to be very similar to the North Jezira Project but the preliminary publication suggests no pre-Halaf occupation (Algaze *et al* 1991). Is there genuinely a paucity of pre-Halaf activity anywhere immediately beyond the borders of Iraq or may there be some other explanation?

In Syria, Proto-Hassuna material is definitely present. It certainly occurs at Tell Kashkashok to the west of Meijer's survey. There is also at least one Proto-Hassuna site identified on a survey around Tell Leilan (unpublished survey material examined courtesy of Harvey Weiss), which probably lies within the area of Meijer's survey. Similarly, survey in the Hasseke, Ras el-Ain, Qamishli triangle on the upper Khabur has detected occupation dating from the Hassuna (Weiss 1991, 697). This suggests that there is not an absence of Hassuna sites in north-east Syria. It is perhaps more significant that Hassuna has been generally known in Iraq, and a sufficient knowledge of its ceramics is perhaps not as well developed amongst archaeologists working in Syria and it, therefore, may have a lower recognition in survey.

The same problem may also apply in the Cizre-Silopi area in south-eastern Turkey as Proto-Hassuna or Hassuna I material has been found at Tell Abu Dhahir (Ball 1987), less than 50 km away in the Tigris valley. However, the Halaf in this area is perhaps more interesting. The pottery from the Halaf sites is reported to be middle to late Halaf (Algaze *et al* 1991, 195). There is an apparently large Halaf site at Takyan Höyük located on the Surik Deresi in the centre of the plain (Algaze *et al* 1991, 195 and fig. 12a). This site is 12 ha in area and although a multi-period mound, "masses of Halaf pottery were found eroding from every slope across the circumference of the site" Algaze *et al* 1991, 195. This seems to be an unquestionable instance of a site hierarchy in the Halaf, although there is little doubt it is not unique but simply more clear cut than other possible examples. This size of site is comparable to that of Ubaid sites in the south of Mesopotamia at the point at which site hierarchy first becomes visible. Eridu, for instance, covered an area of approximately 12 ha

in the early Ubaid (Wright 1981, 338) and Tell 'Uqair was a similar size (Lloyd and Safar 1943; Adams and Nissán 1972, 198-199).

Farther away, in the Balikh, site survey has been carried out with a concentration on prehistoric remains and a chronology comparable in fineness to the one used here (Akkermans 1990). This yielded sites from throughout the period under study. An early peak of settlement was suggested for the end of the seventh millennium, followed by a considerable decline which was only reversed at the end of the sixth millennium, followed in turn by a much greater number of settlements by Halaf II (equals Balikh IIC-IIID). Despite the problems in estimating site sizes, it seems that the usual settlement size remained small until Halaf II when, besides small sites, Mounbatah appears to have grown to become 10-12 ha in area (Akkermans 1990, 151-3). Akkermans suggests that it had become the socio-economic centre of the Balikh valley.

The Edinburgh University survey in the Wadi Dara-Jaghjagh region in north-east Syria also suggests a considerable density of Halaf settlement with 19 sites in an area of 300 km². This seems to be a characteristic site density for the later Halaf at least. Although sites of both Halaf I and Halaf II were certainly discovered (Davidson and McKerrell 1976; Davidson 1981), a more detailed breakdown is not available. As noted in the introduction to this chapter, we may suggest that Chagar Bazar was acting as a central site in this area on the basis of its later importance and its apparently key position in the Halaf pottery trade. However, it is uncertain that this was reflected in settlement size.

Summary

A number of definite conclusions can be drawn from this data. The first is very clear. There was a marked expansion of settlement at the start of sixth millennium in the Proto-Hassuna. This seems to be both an increase in population and an increase in the types of environment utilised for settlement. However, it is probable that, in the north of Iraq at least, the settlement density at any one time was still very low and that there may have been a considerable degree of site mobility. This pattern appears to prevail in Hassuna I as well.

There is a second apparent increase in numbers of sites in Hassuna II/III, accompanied by a spread of settlement to all parts of the NJP survey area. Although different factors may have over-emphasised this, it remains probable that it represents an increase in the number of settlements occupied concurrently. However, whether this or the alternative explanations presented are correct, all would predict an increased level of interaction within society, either through increased settlement mobility or through overlaps in the use of ceramic styles. This may have led to a need to define the position of one's social unity both with respect to other units and territory, something which will be returned to in chapter 11.

There appears to be a decline in settlement in Halaf I followed by an undoubted increase in settlement and population in Halaf II. At this point the population is probably greater than at any previous time. Very importantly, this is accompanied by the first suggestion of an

emergent settlement hierarchy. The implications of these changes will be discussed in detail in chapter 11 in association with other aspects of this study.

Settlement Architecture and Layout

Although the architecture of the late Neolithic has received a considerable amount of study (for instance Aurenche 1981a and b; Forest 1983b), much of it has focussed on the typological evolution of individual building types. Relatively little attention has been paid to the way in which these architectural types were used and any underlying social changes which they may represent.

The limited size of the excavations at most sites means that the architectural record is even more limited than other aspects of material culture. Only a handful of sites have been excavated on a sufficiently large scale to provide the extensive plans which might allow some understanding of the overall structure and layout of a settlement. This causes repeated problems in judging how representative one site is of an entire area. At least in part, this may explain the concentration on individual building types.

The sequence of building types

The late Neolithic of north Mesopotamia produced a variety of well defined and distinct architectural types as well as less regular structures. The former include the Bouqras type of dwelling and the Umm Dabaghiyah cellular structure. The tripartite house and the T-shaped building are both seen at Tell es-Sawwan and the latter has clear and important links in later Ubaid building types (Breniquet 1991; Forest 1983b). Perhaps the most striking building type, and the most remarked upon, is the circular Halaf tholos.

In northern Iraq, the domestic structures of the Proto-Hassuna appear to be characterised by buildings with small, rectangular rooms. These occur at Umm Dabaghiyah (fig. 7.8) and Yarim Tepe I (fig. 7.9) as long blocks of small cells, almost certainly fulfilling a storage function. At Umm Dabaghiyah these form a distinct sub-area of the site. Storage facilities also exist as blocks of small cells, typically arranged in two joined rows and lacking doors, attached to other rooms which appear more domestic in nature; examples occur at Yarim Tepe I (fig. 7.9), Tell Sotto (Bader 1989, fig. 46) and, probably, at Kharabeh Shattani in the Proto-Hassuna (Watkins, Baird and Campbell forthcoming). Outside north Iraq, different building types appear. At Bouqras, there is a very regular form of architecture (Akkermans *et al* 1981). The basic pattern is of three narrow, parallel rooms with three small square rooms added on one end. This type of structure, together with clearly related variations, occurs in all but one of the excavated buildings. At Tell es-Sawwan, in level I (considered roughly contemporary with Proto-Hassuna), the buildings are again based on rectangular rooms but form much more sprawling plans with a large number of rooms (Breniquet 1991, fig. 2). Outside these sites, extensive plans are rare but clearly indicate that rectangular architecture formed the basic building types.

Data from Hassuna I is, as ever, scanty. Where information is available the building plans follow a similar pattern to, for instance, Tell Sotto in the previous phase. In north Iraq, in Hassuna II, rectangular buildings with several rooms appear to be the standard architectural type. The best range was found at Yarim Tepe I and fig. 7.9 illustrates several examples. Although the plans are not entirely clear, individual buildings seem to have between 5 and 9 rooms of varying sizes, one of which has the remains of a hearth.

In contrast to the north of Iraq, at Tell es-Sawwan level III, broadly contemporary with Hassuna III, most of the architecture is of a single type. This is of individual rectangular rooms arranged in a block with one end wider than the other—the T-plan (fig. 7.11 and Breniquet 1991). Exterior buttresses are a characteristic feature of these buildings. Related structures of Samarran date occur at Choga Mami (Oates 1969) and Tell Songor (Kamada and Ohtsu 1981, fig. 27). Breniquet has suggested that a similar plan may be reconstructed for buildings at contemporary Matarrah and slightly earlier Hassuna (Breniquet 1991, figs. 8 and 9). Although the suggested reconstructions are conceivable, I remain unconvinced. It must remain uncertain whether there were ever T-plan buildings in north as well as central Iraq.

The Halaf as a whole has tended to be seen as a period dominated by circular buildings, with or without rectangular annexes. Apart from the pottery, the tholos has been seen as one of the major defining factors of the Halaf. It has been perhaps of even greater importance than pottery in defining the traditional extent of the Halaf because of the scattering of Halaf pottery beyond the limits of its main cultural area. Tholoi have been found at Turlu, Girikihaciyan, Shams ed-Din, Çavi Tarlasi, Tell Hassan and Tell es-Sawwan as well as in the 'core' area. This closely defines the main Halaf spread. The perceived importance of the tholos has also been emphasised by the concentration on change rather than continuity in traditional studies. Thus, the apparently dramatic change from rectangular to round buildings and back again has tended to be used to accentuate the distinctness and unity of the Halaf tradition.

Certainly in terms of defining an evolutionary typology of building types, tholoi have been an important diagnostic of the Halaf and must have a prominent role in any consideration of Halaf architecture. However, it is, and has been for some time, clear that their appearance and disappearance was not completely dramatic. Circular buildings appear in the Hassuna at Tell Hassuna (Lloyd and Safar 1945, fig. 28) and Yarim Tepe I (Merpert and Munchaev 1971, 25-27) and continue into the Ubaid, for instance at Tepe Gawra (Tobler 1950, pl. 43). Perhaps even more important is the growing evidence for the significance of rectangular architecture in the Halaf, seen best in the large exposures at Yarim Tepe II and III (e.g. fig. 7.12).

The earliest Halaf architecture comes from Tell Sabi Abyad, apparently at the very beginning of the Halaf (Akkermans and Le Mièrre 1992, figs 13 and 19). Here there is a rectangular building, whose buttressing on the exterior opposite the end of internal walls is

reminiscent of Samarran architecture although it is not a T-plan building itself. It is associated with circular structures which Akkermans interprets as storage structures (Akkermans and Le Mièrè 1992, 16), although their size is not very different from later tholoi at other sites which are apparently habitations. Whether this type of plan is typical of other early Halaf sites further east is entirely conjectural. Almost the only structural evidence from other areas comes from the early levels of Arpachiyah, which date to Halaf Ib not Halaf Ia. There is no evidence for the use of tholoi in these levels, but with the small size of the excavation this cannot be conclusive.

In Halaf II, there is a clearer picture across north Mesopotamia. Tholoi appear at all sites. The sizes range greatly, from the 10 m diameter structures in TT7 and TT8 at Arpachiyah to small, presumably storage, structures of 1.5 m diameter at Yarim Tepe II. These are often associated with rectangular structures which may be attached to tholoi in the manner of annexes, free standing or in small conglomerations. However, the occasions where the rectangular structures appear to dominate the circular are rare. Rectangular structures may be more significant at the end of Halaf II as they appear at TT6 Arpachiyah and Tell Hassan as the major building type. The larger tholoi presumably fulfilled the role of habitations while smaller tholoi and the rectangular structures provided storage or other specialised facilities. The presence of a double row of small cells at the bottom level of Yarim Tepe II (Munchaev and Merpert 1981, fig. 45) provides an interesting possible link with similar structures in the Hassuna but, without intervening examples, we cannot assume the link was direct.

The social implications of architecture

In addition to sketching the typology and sequence of architectural types, it is perhaps more useful, in view of the many gaps in the record, to examine the possible implications of the different architectural types and layouts in social organisation. It should be stressed that this must be tentative. It can only really be done on the basis of excavation of large exposures, and probably only when they have been excavated deeply enough to avoid the effect of later pitting. Secondly, since very few sites with extensive architecture have been excavated recently or completely published, there is almost no evidence from artefact distribution to aid in identifying individual functional areas.

It is self-evident that, to a greater or lesser extent, buildings represent or mirror social organisation both in the layout and function of individual buildings and in their relation to each other. However, the relationship can be far from direct. The most notable attempt to investigate this aspect in Mesopotamian prehistory has been that of Flannery (1972a) who sought to associate circular architecture with polygamous hunting bands and rectangular architecture with monogamous, more developed societies. This can be criticised as being very simplistic and assuming the correlation of rather too many cultural items. Even worse, his proposed sequence is reversed in the Halaf, something which he noted but did not explain (Flannery 1972a, 43). Nevertheless, some of his observations may perhaps be pursued

further. More recent work on architecture and the structure of space shares much with the approach proposed by Flannery. A direct relationship has been proposed between architectural and spatial segmentation of activities and the complexity of society (a common theme in the papers in Kent 1990a). It is dangerous to either apply or evaluate this suggestion too literally without much greater understanding of the context and function of late Neolithic architecture in northern Mesopotamia. It nonetheless seems worthwhile to examine some of the different architectural types in this light from the sites where extensive exposures have been made.

Bouqras

Because of the extensive excavations and because traces of walls were visible on the surface, a very extensive plan of Bouqras is available (Akkermans *et al* 1983, fig. 3). As noted above the basic structural unit is a multi-room house of a relatively constant plan. The striking regularity of the alignment of these buildings and the general layout of the settlement has been commented on by the excavator (Akkermans 1981, 500; Akkermans *et al* 1983, 348-9). It has been suggested, however, in a different context that similarly apparently sophisticated and regular patterns of building can result from very simple structuring rules (Hillier *et al* 1978). Therefore, it may be a function of the building type rather than an indication of emerging social controls as suggested by Akkermans (Akkermans 1981, 501).

The regular houses appear to have possessed both local storage facilities and hearths within their walls (Akkermans 1981, 496-9). Thus, most day-to-day activities may have taken place within the small social groups resident in each building. The area of most buildings is between 50 m² and 80 m²; the maximum is approximately 100 m². Although too literal an application of the suggested ratios between floor space and the number of occupants would be unwise, these numbers suggest that the buildings were for small family units (see, for example, Naroll 1962). The apparent complete lack of rooms added onto the original plan is a further argument against the occupants being a looser family grouping.

The single excavated building which cannot be considered as any variation of the standard house plan is building 26. Akkermans has noted that it possessed small cells with entry only through portholes and additional storage facilities (Akkermans *et al* 1983, 346). The main rooms initially only had doors through the outside wall with no inter-connecting passages to each other; later these doors were blocked and access could only have been through the roof. It has been suggested that this was a special purpose storage and processing structure. Undoubtedly it is distinct from normal dwellings at this site. Other buildings of this type of plan could be seen on the surface of the site (Akkermans *et al* 1983, 346). They may have been facilities shared by the occupants of the surrounding houses and used for communal purposes or for activities which could not be carried out in individual houses. Alternatively they may indicate that there were central village stores controlled by some authority. Certainly, the large size of the settlement, the degree of segmentation of activities

suggested by the structured nature of the normal buildings and the possible specialisation of building 26 would be taken by Kent (1990b) as indicating a considerable degree of social complexity.

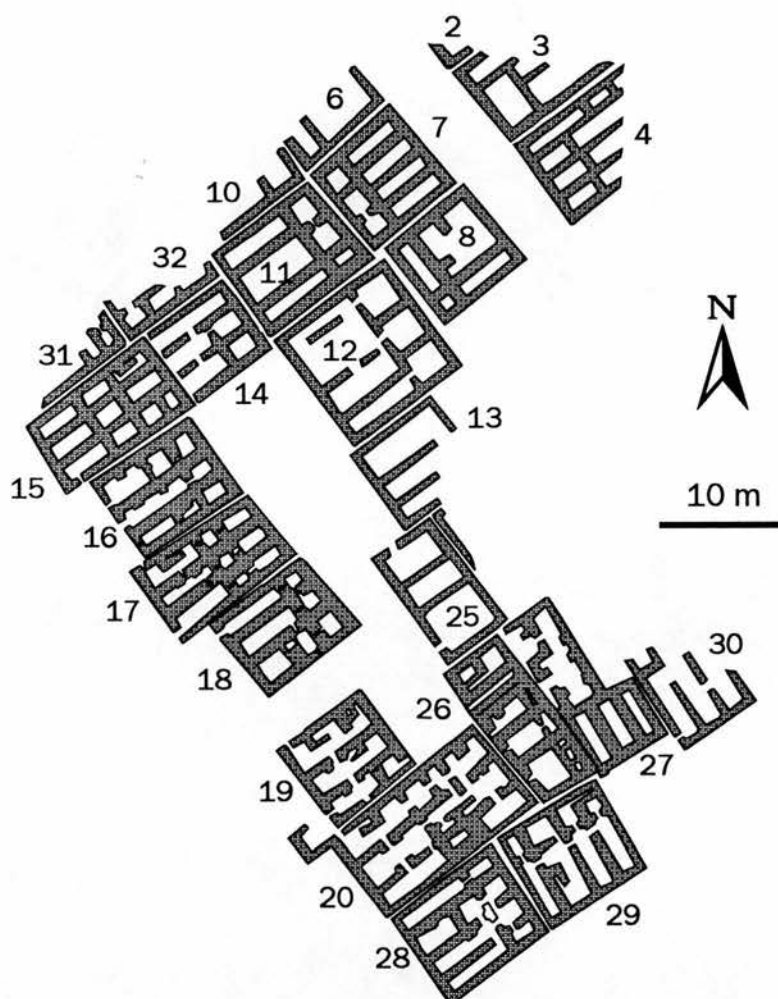


Fig. 7.7 Plan of south-western area of Bouqras (after Akkermans, Fokkens and Waterbolk 1981, fig. 7)

Umm Dabaghiyah

There are several contrasts between Umm Dabaghiyah and almost all other excavated late Neolithic sites. The domestic buildings are themselves rather unremarkable; conglomerations of small rectangular rooms, some fitted with internal hearths or external ovens. In size and number of rooms, at least, they seem rather better suited to nuclear rather than extended families. The buildings at Tell Sotto and the early levels of Yarim Tepe I appear similar to this in general layout. The links are certainly closer with these sites than with the more structured buildings of Bouqras.

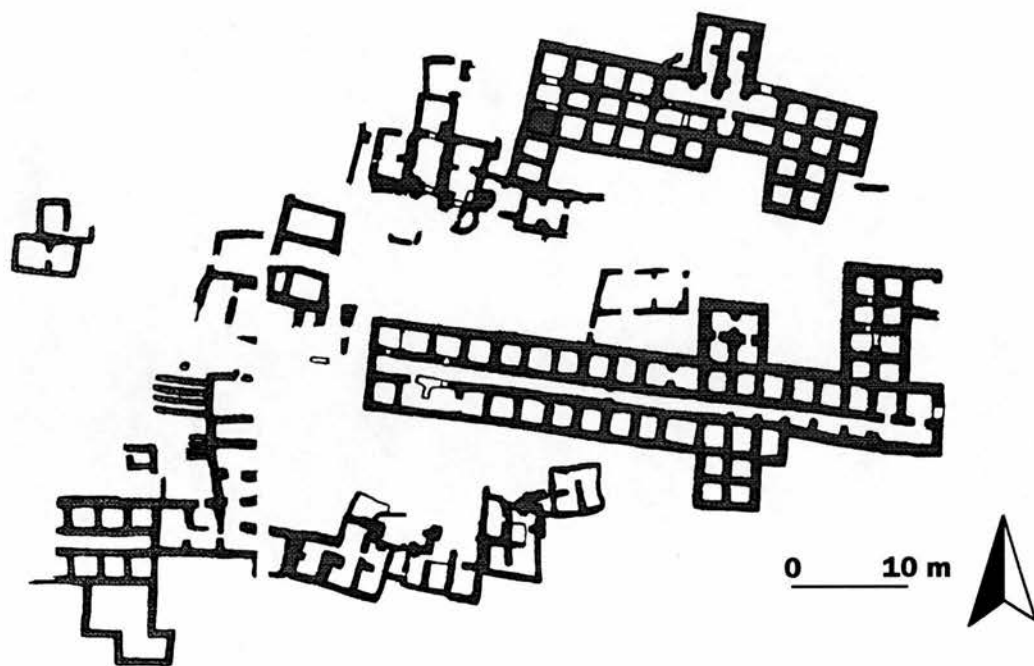


Fig. 7.8 Umm Dabaghiyah plan—Levels 3-4 (after Kirkbride 1982, fig. 2)

The lack of obvious storage facilities in the houses is less surprising than the fact that, in levels 3-4, the excavated portion of the site is dominated by what can only be a large scale storage facility. Better constructed than the domestic buildings, the storage block is made up of over 100 small cells in two rows. A feature of this size is unparalleled elsewhere. It does seem to be a strong contrast to Bouqras, at least, where storage facilities were individual to each house. It must have been a shared storage resource of considerable size. However, whether we are to accept Kirkbride's suggestion that it was a trading post for a central site farther north, which she compares to Çatal Hüyük (Kirkbride 1982, 21), is less clear. There is persuasive evidence that the settlement was only occupied seasonally (Kirkbride 1982, 20). In the two cases where the site was abandoned for long periods, the windows and doors of the houses had been blocked up before they were left, as if to seal them in anticipation of a later return. The large scale storage facilities may, therefore, have served firstly to store material which was to be used on a return to the site. Secondly, the seasonal occupation of the site may have been to exploit a specific resource, almost certainly the onager and gazelle whose bones dominate the assemblage, much of which may have been preserved and taken when the site was abandoned. These extra resources may have been a necessary subsistence resource for the rest of the year, a trade item or, indeed, to supply a more major site farther north. A plausible proposal has been made by Brentjes who suggested that the site may have been used as the focal storage point for a semi-nomadic group (Brentjes 1983).

Yarim Tepe I

Although Yarim Tepe I has been excavated over a wide area, cohesive and extensive building plans are rare. Perhaps the best published example comes from level 5 where the exposure was still extensive and pitting from later disturbances was minimised (fig. 7.9). The structures of this phase are generally typical. At least eight 'domestic' buildings are discernible in addition to part of a double row, cellular storage structure comparable to the larger scale examples at Umm Dabaghiyah.

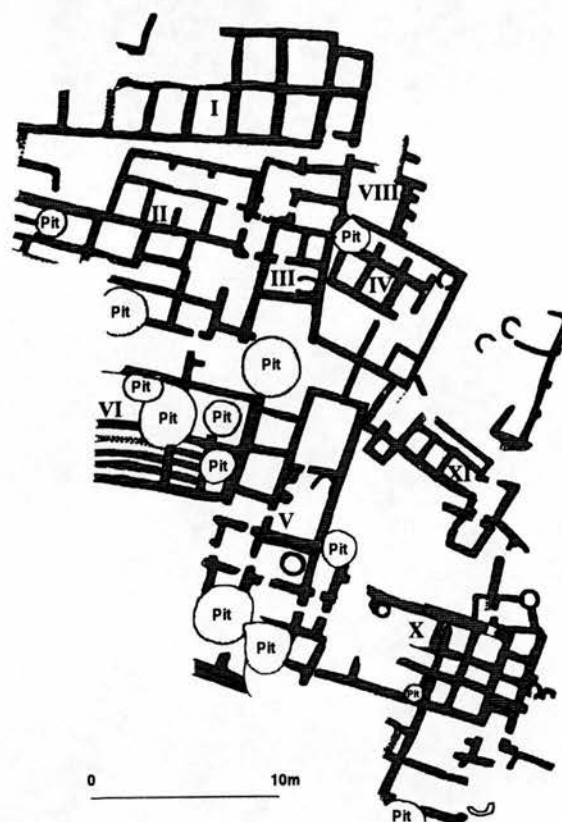


Fig. 7.9 Plan of Yarim Tepe I, level 5. After Merpert and Munchaev 1973a, pl. 37

Most of the buildings are made up of small rectangular rooms forming a rather irregular overall plan. It is evident that some of the rooms were added onto an original core building; the structure on the north side of II was a secondary addition which may either be a separate building or an extension of building II. Most of the buildings have their own hearth or oven. In at least one case (building X) some of the room sizes and arrangements suggest an internal storage function as well. The storage facility at the north of the area, however, seems by far the most prominent storage feature. As at Umm Dabaghiyah, it probably represents a shared resource. There must have been some mechanism to control this, but how it functioned and whether it fulfilled a redistributive role is unclear.

Tell es-Sawwan I-II

This is probably broadly contemporary with Proto-Hassuna sites, although the buildings may post-date the cemetery which provides the main dating evidence. The buildings in these levels are larger than others of the period (average 167 m²). Although Forest has noted similarities with later Ubaid tripartite buildings and attempted to argue that they may occur late in the sequence (Forest 1983b), Breniquet has recently supported their attribution to levels I and II by the Iraqi excavators (Breniquet 1991, 76-79). Without a greater amount of information on the site, it is difficult to analyse them further. They have been described as temples (Al-Adami 1968, 58) but there seems little evidence, other than the possible association of rich burials, to support this. The absence of any other building types in these levels suggests that they are more likely to have been the basic house design. If so, their size and large number of rooms suggests a society organised by extended rather than nuclear families which seems more likely for the northern sites.

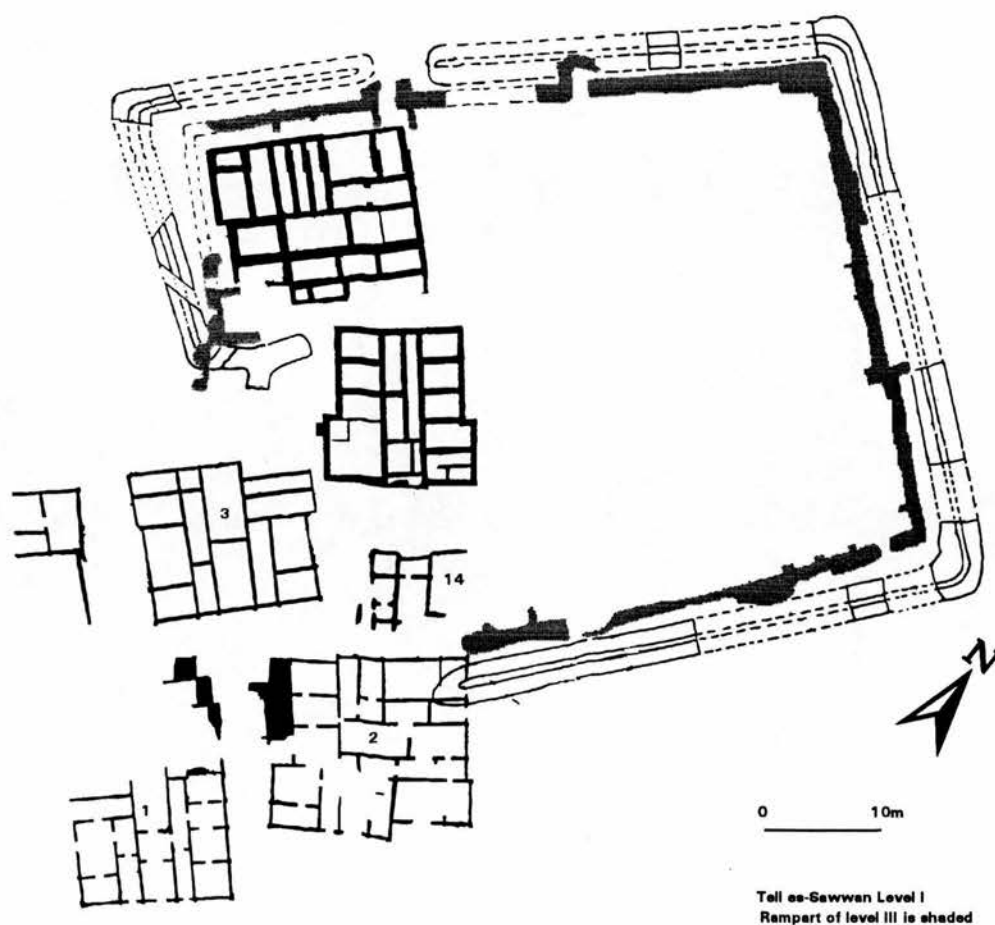


Fig. 7.10 Plan of Tell es-Sawwan I. After Breniquet 1991, fig. 2

Tell es-Sawwan III-IV

The basic building type in these levels is different, although some similarities still exist, and is usually described as the T-plan. This has a standard basic plan, particularly in the outline. There is frequently a range of small, square rooms along one side which could plausibly represent storage space. Certainly, in level III there is no convincing evidence for any specialized storage structures. There is, indeed, little indication of activities occurring outside the individual houses. This tendency towards entirely self-contained dwellings, as well as the very structured designs, is more similar to Bouqras in the Proto-Hassuna than to Yarim Tepe I in Hassuna II. Even later, although a few buildings have been identified as granaries (Abu es-Sooof 1968, 4-5; Abu es-Sooof 1971, 4), the evidence for this is not entirely convincing. As the buildings concerned are very similar in design to standard houses, we should perhaps assume their function was the same. The size of these buildings is much smaller than in levels I and II, averaging only 69.5 m², with the maximum size of 121.5 m² being well below the average of the tripartite buildings. This size is much more comparable to other buildings of the same date in north Mesopotamia and would seem much better suited to a nuclear family.

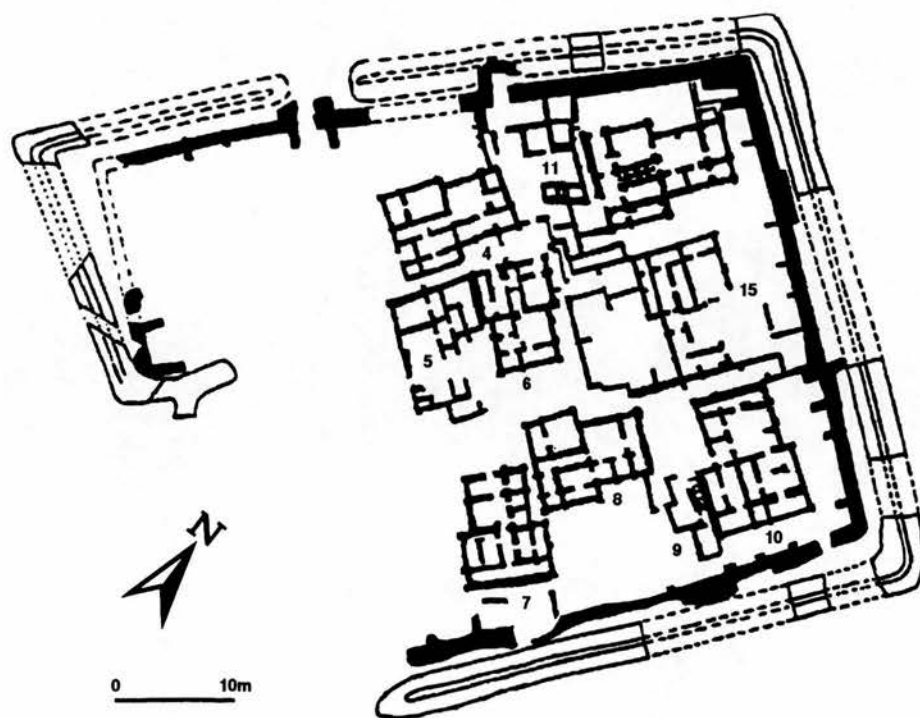


Fig. 7.11 Plan of Tell es-Sawwan III. After Breniquet 1991, figs 1 and 2

The most striking architectural feature of Tell es-Sawwan is the ditch and rampart which surrounds the settlement. Although some of the preliminary reports suggest otherwise, it seems clear that its construction is associated with level III (Breniquet 1991, 83). In this phase, it seems likely that the settlement was entirely enclosed within the rampart. This must

be interpreted as indicating a need for increased security. The necessity of this is reinforced by the closely packed houses inside the wall. At this time Tell es-Sawwan was a small settlement. The walled area is only 40 x 50 m and could only have contained 14 or 15 houses, giving a likely population, based on 6 to 10 persons per house, of less than 150 people. Nonetheless there must have been both the potential threat and the mechanisms to control group labour to construct the defences. The need for the defences seems to have declined with time. In level IV houses were built over the ditch (Breniquet 1991, fig. 10). Whatever circumstances prompted the creation of the rampart and ditch may have been temporary but the knowledge and technology, which must have existed to create a defence of apparently sophisticated nature, do not suggest that they were particularly unusual.

Yarim Tepe II

Unfortunately, in addition to the absence of extensive architecture in Halaf I anywhere apart from Tell Sabi Abyad, discussed above, there are disappointingly few recent and large scale plans for Halaf II. The major exception is Yarim Tepe II and, although the plans of many levels are either incomplete or from restricted areas, it is possible to make some useful statements. The best single plan available is from level VI (reconstructed in fig. 7.12 from several sources) and is probably typical of most levels. More than one sub-phase seems to be collated in this plan but it is dominated by several tholoi. In addition there are a number of rectilinear structures. Most are very small scale, as is typical elsewhere on the site, but there is a larger grouping around a tholos with an unusual internal division in the north of the area.

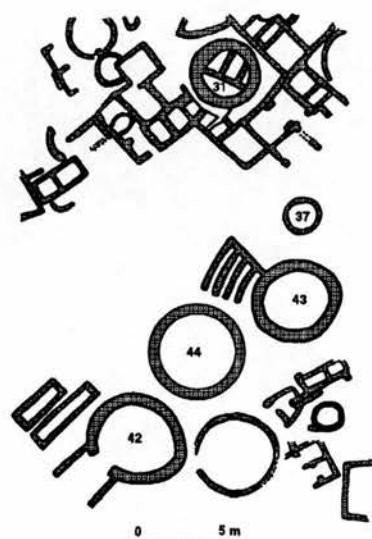


Fig. 7.12 Plan of Yarim Tepe II, level VI. After Merpert and Munchaev 1973b, pl. IX and other sources

If we ignore this larger unit for the moment, it is reasonable to state both that tholoi provide the largest enclosed areas and that there is no evidence for larger building aggregates. This is true for all the published material from Yarim Tepe II and for most other Halaf II

sites where more limited architecture has been revealed. It is in sharp contrast to the Hassuna buildings in Yarim Tepe I (fig. 7.9) as well as those from Bouqras (fig. 7.7) and Tell es-Sawwan (figs. 7.10 and 7.11). There is similarly no evidence for enclosures round a group of buildings or for specific facilities, such as hearths or storage units, being associated as a suite with particular buildings. Flannery says "it is not the 'circular' or 'rectangular' shape of the house which is critical, but whether it is intended for a single individual or a family" (Flannery 1972a, 42). Although it would be premature and probably facile to suggest clear social meaning for this, it seems reasonable to propose that there must have been different ways of structuring individual social units in Halaf settlements.

The single larger unit in level VI is less easily explicable. It is unlike any other unit definitely defined in a Halaf II context. Its appearance is itself unusual with rectangular rooms being grouped around an apparently free-standing central tholos. This does suggest a special function which may be storage. It indicates, at least, the existence of specialised functional areas within Halaf II settlements.

Other Halaf sites

Other Halaf sites suggest similar layouts with tholoi providing the largest structures and rectangular buildings and smaller tholoi providing apparently ancillary functions. This can be seen at Kharabeh Shattani (Baird, Campbell and Watkins forthcoming), Umm Qseir (Hole and Johnston 1986-87) and Shams ed-Din (Azoury *et al* 1980). There is no evidence from any of these sites that the settlement was divided into distinct social units with individual compounds. In all these cases the density of buildings seems slightly lower than at Yarim Tepe II and is undoubtedly lower than at Hassuna sites of all periods. Whether this reflects a difference in site function will be discussed in chapter 11 as part of a more general discussion of site differentiation in the Halaf.

Summary

It should be clear from even the tentative discussion above that several changes in social organisation are suggested by the architecture. The first is the apparent difference between north Iraq and central Mesopotamia during the Hassuna. The north has buildings which lack an over all consistent plan and appear to have been added to as the need arose and as the space was available. Bouqras and Tell es-Sawwan give a picture of much more structured buildings, conceived of and constructed along fixed principles. They do not appear to have been added to but seem to have been complete entities in themselves. However, in both areas, many activities seem to have taken place within the house and the houses formed mutually exclusive units. There is a possible contrast between Tell es-Sawwan I, with its very large, multi-roomed buildings, and the other sites. This may be related to different basic units of society—the nuclear against the extended family.

The latter part of the Halaf is completely different. The settlement plan is very unstructured. There is little sign that social units performed many of their activities within a

clearly defined zone. This seems to reflect some fundamental difference between the societies. The exact nature of the change must be speculative. We might suggest that society was much more communal with a loss of social segmentation, or we might propose that society was more segmented with specific functions being performed in spatially distinct areas. However, the simple change to circular architecture seems a secondary transformation compared to the probable changes in social organisation. There are hints which suggest that this change did not coincide with changes in pottery type. On present evidence, the architecture of Tell Sabi Abyad in Halaf I and the rectangular structures of Arpachiyah TT6 and Tell Hassan in Halaf IIb have little in common with other Late Halaf sites.

Chapter 8

Processes of Exchange

General introduction

The exchange of goods in prehistoric society has a long history of discussion (e.g. Renfrew 1975; Earle 1982). Its role is not limited to its obvious function as a means of redistributing materials between locations which do not have equal access to them, either due to the distribution of raw materials or to manufacturing ability. Material exchange networks also provide conduits through which information can be exchanged and provide, or result from, a means of defining and symbolising a social position. As stated by Renfrew, the goods exchanged "are social acts ... in which the material aspect may have a subsidiary importance. ... An exchange of goods in such communities is primarily an act of reinforcing a social relationship, and material exchange is an important aspect of the adjustment of the individual's relationship with others in his social environment, and in the adjustment of the band's or tribe's relationship with its neighbours" (Renfrew 1975, 5).

Its potential role in the development of complex societies also lies in more than one area. Its organisation may itself be a force in the development of state level society both in Mesoamerica (Rathje 1971) and Mesopotamia (Wright and Johnson 1975). The organisation and control of formal exchange networks can encourage the emergence of central locations and provide a force to integrate settlements over a large area. It may also provide material, access to which may be limited to specific people within a society, both creating or reinforcing an elite and providing a means to symbolise that elite status.

There are clearly many items and materials found in late Neolithic sites which cannot have been available locally. Some of these may have directly acquired from their sources either as part of regular subsistence activities or through specific journeys. Others must have been obtained through exchange with other communities. Many of these materials, however, are difficult to study in detail. The sources may be unknown. Some of the more exotic items, such as cowrie shells and some stones, may occur in such small numbers that the rate of discard must have been minimal and/or the exchange must have been very sporadic. Although the contacts and relationships through which these items were obtained may have been important, it is difficult, at present, to establish anything other than the fact that they must have taken place. In addition, the recording and publication of sites may limit our

ability to usefully examine some categories of material. 'Unglamorous' objects such as ground stone tools have been poorly published in the past and accurate identification of rare stones has rarely been carried out by an expert. It is also important to emphasise that, of necessity, we can only examine material which has been preserved in the archaeological record. A wide variety of perishable goods may also have circulated between settlements.

In view of these problems, it is proposed to divide this discussion into two parts, long distance and short distance exchange networks, and to discuss in detail only one example of each which can be well documented. This distinction is made for convenience and to provide minimal breadth to the discussion. However, intuitively, there is some validity in it. Short distance trade is concerned with materials being brought from nearby areas, say within 50 km or so. These materials can be obtained by direct access to the source or by direct trade with the settlement close to or producing the resource. The transport of materials is unlikely to have been a major problem over these distances. Materials involved in long distance trade may come from distances of several hundred kilometres. There may be severe problems of transportation if the material is not light in weight or only transported in small quantities. Although other mechanisms, such as long range transhumence, may allow direct access to the source, the potential for long distance trade involving a wider range of social and economic relationships is higher than for short distance trade. Consequently, the dependence of a society on material obtainable only through long distance trade may be related to the stability of these social and economic relationships. Obviously the division between short and long distance trade is artificial; they are, at best, opposite ends of a spectrum. They are used here to allow us to examine one example of each and, thereby, sample the range of types of exchange occurring in different periods.

The example used for long distance exchange is obsidian. This has a long history of study and we know that it must have been imported over distances of at least 200-300 km to almost all the sites of the cultures under study. The example used for short distance exchange is pottery which again has been the subject of a considerable amount of study and which does not appear to have been distributed in significant amounts over distances of more than about 50 km. Clay is a widespread resource in northern Mesopotamia along wadi beds and it seems unlikely to have been brought to a site from more than a few kilometres. Ethnographic evidence also suggests that the raw materials used for pottery are not generally obtained from a great distance (Arnold 1985, tables 2.1-2.3). The exception to this is material to be used for paint, which has not been used in the study of ceramic sourcing (Arnold 1985, table 2.3). Therefore, we can again propose that ceramics imported to a site have been obtained through some process of exchange.

We cannot assume that the mechanisms behind the distribution of obsidian and ceramics are characteristic of other materials traded over similar distances. However, there is little reason to suggest that any other exchanged items were of a greater order of importance than

the two chosen and they are certainly less amenable to analysis at present. We can hope to indicate to a large extent the types of exchange that were taking place.

Long Distance Exchange

It is clear that there are many items in late Neolithic contexts in north Mesopotamia which have been or may have been traded or exchanged over a very long distance. The cowrie shells in the Arpachiyah Burnt House must have come from the Gulf or the Mediterranean. Non-local stones are present in many sites (e.g. Arpachiyah, Mallowan and Rose 1935 and appendix D; Tell es-Sawwan level I, El-Wailly and Abu es-Soof, 1965, 25-28; Yarim Tepe II, Munchaev and Merpert 1981, 280). Carnelian, turquoise, serpentine and steatite may have been valuable and may have been traded over long distances. However, given their scarcity in excavation, in most cases their exchange must have been very low scale and, possibly, sporadic. The materials may have been important in making prestige objects or as a specific item in a prestige exchange network but there is too little data to allow a convincing interpretation. An additional problem is that most of the materials have not been identified by a specialist; for instance, there are a range of apparently exotic items from the Burnt House at Arpachiyah (see appendix D) but without a specialist's report we cannot be sure of the accuracy of the identifications. Furthermore, in many areas there is inadequate knowledge of the sources which might have been available or exploited.

Raw materials which may have occurred in more significant quantities over long distances in the late Neolithic include bitumen and vesicular basalt. The former has a wide archaeological distribution and is used as a waterproofing agent and to seal the breaks on repaired pottery. Sources occur widely in the oil rich areas of north Iraq but must have been transferred over considerable distances to some sites. Basalt occurs on many sites, mainly in the form of ground stone tools such as querns and mortars. The quantities in which it occurs can be quite large but it is so rarely published in detail that it is difficult to evaluate. Even at the early Ceramic Neolithic site of Ginnig basalt fragments were common. There are certainly localized sources of basalt in several places in northern Syria and north Iraq but many sites would have had to import it from a distance. However, there is too little evidence to say whether this was obtained by direct access to the sources or through various forms of exchange.

Obsidian

For the rest of this section the emphasis will be on obsidian. This has a number of advantages. It is easily recognised, even by non-geologists, and is so clearly different from chert that the relative quantities of chert and obsidian lithics are commonly reported. Although some problems remain, its source areas are now relatively well defined and characterised. It has had a long history of investigation and there can, therefore, be some attempt at an overall interpretation of its distribution.

Sources and geology

Obsidian is a rapidly cooled volcanic glass. Because it is a relatively volatile material, it occurs only in rather restricted areas of recent volcanic activity. There are several sources in the Mediterranean, in Arabia and in north-western Africa but the only areas which are known to have supplied obsidian to north Mesopotamia are the Van/Armenia/Azerbaijan sources and, to a much more limited extent, the central Anatolian sources. A large number of sources are known, which can be distinguished chemically. Several different methods of analysis have been used. The initial work was done by optical omission spectrography which established the basis for all the subsequent work in the Near East and still supplies much of the primary information (Cann and Renfrew 1964; Renfrew, Dixon and Cann 1966 and 1968). The most relevant later work has been done using neutron activation analysis (Wright 1969; McDaniels 1976; Epstein 1977) although other methods have also been used. Since a large number of different researchers have published results, there are inevitable conflicts in the names used for each of the sources which can be difficult to reconcile. The approach taken here is to refer to the original group as identified by Renfrew, Dixon and Cann because of its high recognition value. Wherever possible a geographical location will also be given. Occasionally the original group name alone will be given if this is more convenient.

The characterisation studies have established that source differentiation is effective, with a few qualifications. In almost all cases, sources can be differentiated on the basis of their trace element composition, provided a wide enough range of elements at a sufficient precision is used. However, some of the older analyses were not able to differentiate between all the sources. For instance, Renfrew, Dixon and Cann identified group 1e-f which characterised obsidian sources in Cappadocia and the Kars region in western Turkey. Later work was able to distinguish between at least some of these locations. More important, in this context, is the confusion in the original group 4c which was found at both Bingöl and Nemrut Dag. Although these can be readily distinguished using neutron activation analysis (e.g. Wright 1969, 15), there has been no subsequent reanalysis of the samples from north Mesopotamia so that, in most cases, we cannot say from which source the older samples come. Fortunately the centres of the Bingöl and the Nemrut Dag sources are only 150 km apart, and their outlying flows very much closer, so it is doubtful whether any changes in the distribution of their obsidian can be of more than limited significance in northern Iraq.

The exact source of some compositional groups discovered in samples from archaeological sites are unknown although it is possible to make rough estimates of the likely position of the source from the distribution of the obsidian from it. The two principal compositions in north Mesopotamia which do not come from a known source are 1g and 3a. Renfrew and Dixon suggested that the source for group 1g may be to the west or south-west of Lake Van (Renfrew and Dixon 1976, 146), although Renfrew had earlier proposed that it might be to the east (Renfrew 1970, 142). They also suggested that the source or sources for

3a may be to the north-east of Van (see in particular Dixon 1977, 307-310). The latter may now have been located at Zarnaki Tepe (Blackman 1984).

Connected to this is the problem of sources which have not been adequately analysed or are not yet known. The former problem may affect the obsidian from Suphan Dag and the sources in Soviet Armenia (Blackman 1984). The latter problem may have declined with increasing numbers of geological surveys but it may still remain. Indeed there has recently been a report of a source of good quality obsidian near the Turkish border of Syria near Ras al-Basit—a new candidate for the missing group 1g source (Francaviglia 1990, 46).

A further source of potential confusion is that there can be detectable variation in the trace element compositions of different flows at a single source. This has been demonstrated particularly at Nemrut Dag where Blackman was able to distinguish four different compositions from this source which were suggested to be different flows (Blackman 1984, 29). The map of obsidian flows at Nemrut Dag (Francaviglia 1990, fig. 2) suggests that there may be many more. Similarly, at Bingöl it has been possible to identify two different compositions and suggest the presence of a third (Cauvin *et al* 1986). It can still be hoped that the variation between the flows at a single source is less than that between different sources but this is a major potential problem in discussing the analyses from older works when these distinctions could not be recognised.

In general, source distinction can only be done by element analysis. This has severely limited the number of source determinations available due to the time and cost involved. There is no site central to the present analysis which has been adequately sampled. In the main, no more superficial examination is in any indication of source. There is, however, one exception. There are three basic types of obsidian; alkaline, calcalkaline and peralkaline. Peralkaline obsidians have a characteristic green or brown tinge in transmitted light, due to the increased levels of iron (Cann 1983, 234). Although this is not universal amongst peralkaline obsidian or always unique to them, it appears to be a close approximation. Peralkaline obsidian is relatively rare (Francaviglia 1990, 44-47 and fig. 1). There is no indication from chemical analyses that obsidian was reaching north Mesopotamia from the sources in Arabia, Ethiopia or the Mediterranean; something which seems inherently unlikely given the distance and distribution of known archaeological obsidian. Therefore, the only two likely peralkaline sources are Bingöl and Nemrut Dag, situated close to each other to the west of Lake Van. It seems very reasonable to suggest that the quantity of green or brown (the huge majority appears to be green) obsidian at a north Mesopotamian site broadly represents the quantity of obsidian from these two sources and that the quantity of grey obsidian represents all the other sources (also suggested by Renfrew 1977, 292-3). The small number of Nemrut Dag or Bingöl obsidians which are not green and the rare obsidians from other sources which are green (mainly from group 1g) must be relatively insignificant. Some confirmation of this can be provided from table 8.1 which shows the frequency of green/brown and grey/clear obsidians of known sources compiled from the original optical

omission spectrography (Renfrew, Dixon and Cann 1966 and 1968) and the neutron activation analysis programmes carried out in Bradford (McDaniels 1976; Epstein 1977). In the absence of a detailed analytical programme, this seems a useful and justifiable approximation and, even if such a programme existed, the absence of sampling error may more than compensate for the possible oddities in colour.

Source	Number Green	Number Grey or Clear	%age Green
1e-f		39	
1g = B2	9	40	18%
1h		8	
2b = B1		122	
3a = B4		17	
3c		9	
3d		2	
4c	43	9	83%
4c = G1 (Nemrut Dag)	101	2	98%
4c = G2 (Bingol)	10		100%
4c = G3? (Bingol?)	10	2	83%
4d	1		
4f		5	
T1 = (new?)	2		
B3 = (new?)		1	

Table 8.1: Colours of obsidian from known sources (Data after Renfrew Dixon and Cann 1966 and 1968, McDaniels 1976 and Epstein 1977).

The importance of obsidian as an economic resource

For a large part of the period under consideration, obsidian is present in very significant numbers on many sites. It is, however, difficult to assess its true economic importance. Torrence has rightly pointed out that the assumption that obsidian was an inherently valuable commodity is difficult to justify without a very detailed analysis (Torrence 1986, 41, 133). Such an analysis has never been performed on a substantial assemblage in neolithic Mesopotamia. Certainly when obsidian occurs very rarely, it can be argued that the total quantities involved must be extremely low. Renfrew, for example, has suggested that the total quantity of obsidian at Chogha Sefid (where it made up 0.5% to 7% of the assemblage numerically) in the entire life of the site could have been carried on only two donkeys (Renfrew 1977, 299). Similarly in the upper phase of Jarmo, with an apparently high percentage of obsidian, Braidwood has suggested that less than 1kg of obsidian need have been imported per year (Braidwood 1983, 287). Even this, however, does not suggest that obsidian in these very small quantities was economically insignificant. For instance, at Ginnig, dating to the very early Ceramic Neolithic in north Mesopotamia, obsidian makes up only 2.36% of the lithic assemblage. However, much of the obsidian was in the form of side blow blade flakes, a form which did not occur in any other material (Campbell and Baird 1990, 75). At the slightly later Umm Dabaghiyah, with a larger percentage of obsidian, side

blow blade flakes are again common and exclusively made in obsidian (Mortensen 1983, 212). This suggests the possibility that a certain tool or type of function could have been dependent on a regular supply of obsidian, even in very small quantities.

The value of obsidian as a commodity is certainly distinct from its direct economic importance; depending on the exchange mechanism and social context involved, its status value could heavily outweigh its functional value or vice versa. Such a contextual value could only be suggested after much greater evaluation. It is reasonable, however, to suggest that at some frequency within an assemblage or when making up a high percentage of a functionally important tool, the supply of obsidian needed to be sufficiently regular that its reliable procurement is of importance to the functioning of that society. The point at which this might occur is very problematic. It is unlikely to be directly related to the percentage of pieces of obsidian amongst all the lithics from a site, the most commonly available measure. It is very common for the chert assemblage to include a large amount of debris while the obsidian industry is almost entirely blades and tools. For instance at Yarim Tepe II, levels 8-9, amongst tools, obsidian is said to be three times as common as flint although obsidian only made up 34% of the total lithic assemblage (Merpert and Munchaev 1987, 27). The quantification of obsidian is fraught with more general difficulties regarding whether it should be by number, by weight or by more esoteric measures such as obsidian weight per cubic metre of excavated material or weight of obsidian ratioed to the weight of pottery (see Torrence 1986, 28-30). Given the variable standard of publication available for north Mesopotamia, there is little point in attempting to use theoretically sophisticated measures or detailed sub-division of lithic assemblages. The only statistics generally available to us are the percentages of pieces of obsidian in the overall total, hopefully sub-divided by level at a site. This is used, therefore, with due acknowledgement to its problems, and further details are utilised where available. However, it must be remembered that this is a crude indicator of the importance of obsidian at a site. In general, it seems likely that it will be a considerable overestimate of the significance of obsidian by weight but a considerable underestimate of the percentage of obsidian amongst blades and, probably, retouched tools.

Given that this very general measure must form the basis for our estimates of obsidian frequency, is there a reasonable percentage at which we may suggest that obsidian is a vital and integral part of the chipped stone economy of a site? There seems to be no figure which has been derived from a detailed study of stone tools or from ethnography. Figures of 30% (Renfrew and Dixon 1976, 147) and 20% (Pires-Ferreira 1975, 24) of chipped stone from a single source have been suggested as being levels which indicate a regular supply between source and site. That is slightly different from the figure we are seeking, and these figures themselves appear to have no firm basis. However, as a rough working figure, it is probable that a figure of 20%, when occurring in a reasonable sample and replicated at several sites of the same date and in the same area, may be a level at which we can suggest that a site was obtaining a regular supply of obsidian and that that supply had become integral to the

procurement strategy for raw material of that site. It is convenient (and it must be admitted not entirely coincidental) that this figure marks the main change in the frequency of obsidian over time in north Iraq. At, or above, this frequency it seems likely that obsidian has a genuine economic value and is worthy of study as a valuable resource not just a status item as well as a surviving fossil of the trade or exchange of other, more perishable, material.

Previous studies

The first systematic study into obsidian distributions was carried out by Renfrew, Dixon and Cann (1966 and 1968) and the interpretation of their initial work was developed in a series of papers (for instance Renfrew and Dixon 1976; Renfrew 1977; Dixon 1977). Further early work was carried out by Wright (Wright 1969; Wright and Gordus 1969). There is some overlap in the samples that he analysed and those sampled by Renfrew and his co-workers. The only further work of note in Mesopotamia has been the detailed studies on large samples from Abu Hureyra, Tell Assouad and Choga Mami carried out at the University of Bradford (McDaniels 1976; Epstein 1977). Although these sites are slightly peripheral to the main part of this study, they are nonetheless useful as detailed studies of large samples from a few sites rather than the more common study of small samples from many sites.

Of major significance is an apparent change in the sources of obsidian being exploited. Until the end of the Hassuna/Samarra phases, the two main sources are groups 4c (Nemrut Dag/Bingöl) and 1g (unknown location) as at Bouqras and Tell Shimshara. However, after the start of the Halaf, almost no pieces of group 1g obsidian have been found. There is a single example at Arpachiyah. Instead group 3a seems to have been exploited in much greater quantities.

	1g	3a	4c
Arpachiyah	1	2	2
Chagar Bazar	1	1	
Eridu			3
Shimshara	4		2
Tilki Tepe		2	
Matarrah			2
Bouqras	4		2

Table 8.2: Obsidian of known sources found in north Mesopotamian sites (After Renfrew, Dixon and Cann 1966 and 1968)

	1g	3a	3d	4c
Arpachiyah	2	3		4
Banahilk		4		7
Chagar Bazar		1		1
Eridu				4
Tell es-Sawwan		2		4
Tell Halaf		1		
Hassuna				1
Matarrah				3
Shimshara	1			2
Tilki Tepe		6	1?	3

Table 8.3: Obsidian of known sources found in north Mesopotamian sites (After Wright 1969)

Most of the early studies into the form in which trade was taking place have been based on the study of fall-off curves. A supply zone of approximately 300 km around a source was envisaged in which direct access to the source would permit a very high quantity of obsidian to be present. This figure seems to be essentially arbitrary and chosen to include Tell Shimshara, with its high quantity of obsidian, in the supply zone. Beyond this various forms of exchange would take over and produce a generally exponentially declining curve. Renfrew has defined four main forms of curve which occur when the log of the percentage of obsidian at a site is plotted against the distance from the source. The forms were identified with down-the-line trade (broadly equated to reciprocal exchange), prestige-chain (the exchange of prestige objects between elites), freelance trade, and directional trade or central place redistribution (see especially Renfrew Dixon and Cann 1968, Wright 1969 and Renfrew 1975). The major conclusion for the area under discussion is that there was a change around 5000 BC from down-the-line trade to directional trade. However, this directional trade was essentially only detected in the Susiana plain (Renfrew and Dixon 1976, 148). It is uncertain, therefore, whether it was ever envisaged as applying to north Mesopotamia at this time.

While the forms of trade suggested for these fall-off curves may be a useful abstraction of trade forms, a number of problems have emerged with this approach. Simulation studies suggest that random walk patterns based on different modes of trade can produce virtually identical fall-off curves (Hodder and Orton 1976, 138-139). Ammerman *et al* (1978) have shown that the additional inclusion of the time over which a distribution system has been operating has a major effect on the slope of a fall-off curve depending on the level of discard of obsidian. Torrence has also noted that any fall-off curve is strictly measuring the flow of goods not the method of exchange (Torrence 1986, 119) and, therefore, inherently, we should not expect a discrete curve for each form of exchange.

There are additional, archaeological reasons to be cautious about accepting fall-off curves as anything more than very broad generalisations more useful for describing a model of trade than for interpreting archaeological data. Firstly, there is the question of the measurement of the quantities of obsidian. Most of the studies of fall-off have been based on the percentage

of the number of pieces of obsidian in an assemblage. Had the percentage of obsidian been calculated by weight, a very different picture might have emerged. Secondly, and perhaps more importantly, is the problem caused by the very inadequate sampling of sites which were used to produce these curves. Only a very few sites were used in the construction of the key curves from very large areas and over long periods of time. The example of Magzaliya is very pertinent. The site was not known at the time the original studies were carried out. However, the high quantities of obsidian from this late aceramic Neolithic site (discussed in more detail below) are in complete contrast with the figures in the original studies and would have radically altered the interpretation of the curves.

In studying the Aegean obsidian trade, Torrence (1986) has concentrated instead on the study of the form in which the obsidian occurs, either at the original quarries or at the sites where it is found. This is an approach which has not generally been adopted in the study of Near Eastern obsidian, perhaps as a consequence of the lack of specialist Near Eastern archaeologists in previous studies.

It is this last approach which will be used where possible. In part, this is because of the low degree of variation in the distance from the sources of the major sites involved. In view of the problems with fall-off curves, it also seems inherently more likely to achieve results. For convenience, however, the general categories of trade suggested by Renfrew (1975) and listed above will be utilised.

Site	Level	Obsidian	Notes	Reference
M'lefaat	All	0.5%		Dittemore, 1983, 674
Qermez Dere.	All	0.1%		Watkins <i>et al</i> , 1991, 12
Telul el-Rihan	All		Obsidian much more common than flint, cores present, typically micro-blades	Tusa 1982, 30
Nemriq	All	0.5%	Both green and grey present.	pers. comm. Stefan Kozlowski
Magzaliya	All		Obsidian more common than flint except in top level	Merpert, Munchaev and Bader 1981a, 30; Merpert, Munchaev and Bader 1981b, 64
Abu Hureyra	Early Aceramic	2.1%		McDaniels 1976, 33
Abu Hureyra	Late Aceramic	5.4%		McDaniels 1976, 33
Ginnig	All	2.4%		Campbell and Baird 1990, 72
Jarmo	I	28.1%		Hole, 1983 Table 18
Jarmo	II	45%		Hole, 1983 Table 18

Table 8.4: *Quantity of obsidian at earlier Neolithic sites*

Obsidian in the aceramic Neolithic

In the aceramic Neolithic in northern Iraq obsidian appears to occur regularly but in very small quantities at Qermez Dere and Nemrik. It seems unlikely that it was of great economic importance and a down-the-line exchange system along the lines suggested by Renfrew seems appropriate. Limited quantities of high-quality, brown flint may have been traded over considerable areas as well (Watkins *et al* 1991, 12; Kozlowski pers. comm.) but, again, the quantities are very small.

There is, however, a single exception at the late aceramic site of Magzaliya on the southern flanks of the Jebel Sinjar (see Campbell and Baird 1990 for a discussion of the relative dating of this site). Here, obsidian makes up more than half of the total assemblage. Obsidian, including production waste, makes up three-quarters of the lithic assemblage in the earliest levels although it declines gradually through time (Bader, 1989, 350). At Ginnig, logically the earliest ceramic site and possibly quite close to Magzaliya in date, there is only 2.4% obsidian. Later Proto-Hassuna sites all have much lower percentages (discussed below). It is clearly impossible to fit the concentration of obsidian at Magzaliya into a framework of simple, low level, down-the-line trade. It is unfortunately entirely unclear whether this high percentage is characteristic of other sites of a final aceramic phase in northern Iraq. It does not seem to be the case in northern Syria where, at Abu Hureyra, the latest aceramic phase had only 5.5% obsidian but that site may obviously be functioning in a different exchange system. A possible central Mesopotamian parallel to the high percentages of obsidian at Magzaliya comes from the aceramic site of Telul el-Rihan in the Hamrin. Although very few details are published, the statements that obsidian is much more common than flint and that cores were present are very suggestive (Tusa 1982, 30).

The high frequency of obsidian may reflect a generally high percentage of obsidian for a relatively brief period in north Iraq. It is conceivable that there is a gap of several hundred years between the end of the Nemrik sequence and the start of the ceramic Neolithic, a period from which only Magzaliya is known. This could be sufficient for a much greater level of trade in obsidian to flourish and decline. Such an assumption does depend on a great deal of faith in negative evidence. Alternatively Magzaliya may have had a special place in obsidian exchange, perhaps as a centre for redistribution. If Magzaliya was acting as a distribution centre in a directional trade system, which would account for an elevated percentage of obsidian at that site, it seems perhaps surprising that it is not situated on or near any of the traditional north-south routes; it lies instead close to the later east-west route running to the south of the Jebel Sinjar. Although this is a problem which is both chronologically slightly earlier than this thesis and probably impossible to solve on the present evidence, it serves as a salutary reminder that within the apparently regular patterns of monotonic decrement identified and interpreted by Renfrew may lie much more complex, and possibly more interesting, patterns of distribution and behaviour. Such complex patterns must be potentially just as common in the later Neolithic.

Site	Level	Obsidian	Notes	Reference
Abu Hureyra	Ceramic Neolithic	4.2%		McDaniels 1976, 33
Umm Dabaghiyah	All	6.3%	56.9% green, 43.1% grey	Mortensen 1982, 208
Umm Dabaghiyah	IV	22.1%		Mortensen 1982, 208
Umm Dabaghiyah	I	5.5%		Mortensen 1982, 208
Ali Agha	All	28.6%	Sample of 525	Caldwell 1983, 669
Telul eth-Thalathat	XV+XV I	19.5%	Sample of 1281.	Fukai <i>et al</i> 1970, table 18; Fukai and Matsutani 1981, table 1
Tell Sotto	All		Obsidian rare	Merpert, Munchaev and Bader 1978, 48
Matarrah Lower	8.7			Braidwood <i>et al</i> 1952, 20
Tell Kashkashok	Level 3	32.7%	Controlled sample from P9	Nishiaki 1991, 41
Bouqras	All	20%	Sample of 13955	Akkermans <i>et al</i> 1983, 349
Damishliyya	Level 2	6%		Copeland 1989, 247
Damishliyya	Level 7	16%		Copeland 1989, 247
Yarim Tepe I	11-12	27%		Munchaev and Merpert 1981, 116

Table 8.5: Quantity of obsidian at Proto-Hassuna and contemporary sites

Proto-Hassuna

In the phase characterised by Proto-Hassuna pottery, there is a clear increase in the quantity of obsidian present at sites in north-east Syria (Bouqras and Tell Kashkashok) and north-west Iraq (Umm Dabaghiyah, Telul eth-Thalathat and Yarim Tepe I, levels 11-12), in comparison with the earlier aceramic Neolithic sites and with the early ceramic site of Ginnig if not with Magzaliya. However, the decline in the quantity of obsidian at Umm Dabaghiyah from 22% in the earliest level to 5.5% in the last (Mortensen 1983, 208) is intriguing. It is possible that this is a suggestion of a gradual decline in the quantity of obsidian from a high very early in this period. However, although the figures for the two middle phases at Umm Dabaghiyah are not available, the average of 6.3% for all phases suggests the high, early figure may be an anomaly.

Apart from Umm Dabaghiyah, which may be an exception due to its geographical position and possibly separate role, obsidian makes up between 19.5% and 32.7% of the lithics assemblages at these Proto-Hassuna sites. Although the figure of around 20% proposed above for the point at which obsidian would become economically critical is conjectural, there is a clear suggestion that obsidian was being supplied in a regular and reliable manner. Given the much greater density of sites apparent in this period (chapter 7), the total quantity of obsidian in use and circulating within the exchange system must have been very considerable. A more detailed analysis of the forms in which obsidian appears supports this.

Some categories of lithics, especially side blow blade flakes but also other blade based tools, are largely made with obsidian (for instance at Umm Dabaghiyah, Mortensen 1983, 212). At Yarim Tepe I most of the obsidian is in the form of blades or tools and cores are completely absent. In contrast, the flint is composed mainly of cores, flakes and

production waste (Munchaev and Merpert 1981, 275). At Telul eth-Thalathat there is no evidence of obsidian cores or preliminary preparation and obsidian is dominant in various tools categories; all 104 side blow blade flakes are obsidian, as are all 19 notched blades. Amongst retouched tools, 187 are obsidian compared to only 54 flint (Fukai and Matsutani 1981, table 4). At Tell Kashkashok, a high percentage of tools were of obsidian, notably side blow blade flakes and corner-thinned blades along with other retouched blades and bladelets (Nishiaki 1991, 48-53). The implication is clear that, for much of their repertoire, the chipped stone industries were far more dependent on the supply of obsidian from outside the site than raw figures may suggest.

There is no definite indication of the form this trade was taking. Even at this date, blades were being prepared away from the excavated areas of sites. This is clear from the general absence of cores and lack of extensive chipping debris at Umm Dabaghiyah (Mortensen 1983, 209-210), Tell Kashkashok (Nishiaki 1991, 44) and Telul eth-Thalathat (Fukai and Matsutani 1981, 47) and is probable at most of the other sites. Obsidian was presumably being introduced into the sites in the form of prepared blade cores or as finished blades; possibly the latter in view of the absence of exhausted cores. Whether this preparation was done at the sources themselves, and the product redistributed through traders or as down-the-line trade, or at an intermediate distributional centre is completely unclear. Nonetheless, it seems likely that Proto-Hassuna society was dependent for obsidian supplies on a exchange network of considerable reliability which was presumably integrated into the social system both within its own cultural context and, to at least some degree, in the social relationships with groups closer the sources.

There are very few useful source analyses for this area and period. Four samples from Bouqras are from group 1g compared to the 2 from 4c (Nemrut Dag or Bingöl). This is much too small a sample to allow any firm conclusions and comes from only a single site. However, at Umm Dabaghiyah 57% of the obsidian is green and, therefore, mainly of group 4c. Mortensen suggests the remaining grey obsidian comes from Çiftlik in central Anatolia (Mortensen 1983, 208). This is almost certainly wrong as virtually no central Anatolian obsidian has been analysed from Mesopotamia at any period. The majority of the grey obsidian must be of group 3a or, more probably in view of the samples known from Bouqras, 1g. Whether this is also true of the sites nearer the Jebel Sinjar is unknown. An unknown number of samples from Tell Kashkashok come from Bingöl (Nishiaki 1991, 41).

The situation in north-east Iraq is less clear-cut. The possibly biased sample from the lower phase at Matarrah of 8.7% (Braidwood *et al* 1952, 20) contrasts with the figure from the broadly contemporary site of Ali Agha of 28.5% (Braidwood *et al* 1983, 669). The high figures for Jarmo may suggest that obsidian was being traded more extensively closer to the Zagros and that Matarrah fell into a gap between trade routes. The small amounts of obsidian from Jarmo and Matarrah which have been analysed come from sources 1g and 4c (Nemrut Dag or Bingöl).

In the Balikh valley obsidian makes up 16% of the chipped stone at Damishliyya. This is slightly lower than comparable figures in north Iraq but the disparity is much less than it was in later periods. In the ceramic Neolithic levels at Abu Hureyra as much of the obsidian seems to come from the Cappadocian as from the eastern Anatolian sources (McDaniels 1976, 67).

Site	Level	Obsidian	Notes	Reference
Hassuna I				
Yarim Tepe I	8-9	15.4%		Munchaev and Merpert 1981, 116
Hassuna III/Samarra				
Matarrah	Upper phase	23%		Braidwood <i>et al</i> 1952, 20
Tell Shimshara	All	87.6%	20.4% green, 79.6% grey	Renfrew, 1970, 140
Choga Mami	I	2.6%	20% green, 80% grey in all levels	Mortensen 1973, 38, n.12
Choga Mami	II	3%		Mortensen 1973, 38, n.12
Choga Mami	III	5.7%		Mortensen 1973, 38, n.12
Choga Mami	Trans	2.4%		Mortensen 1973, 38, n.12
Sabi Abyad	Pre-Halaf	14.5%	Obsidian tools twice as common as flint	Copeland 1989, 246

Table 8.6: Quantity of obsidian at Hassuna I-III and contemporary sites

Hassuna I-III (Archaic Hassuna to Hassuna/Samarran)

There is almost no data for Hassuna I (Archaic Hassuna). The figure for Yarim Tepe II levels 8-9 suggests a slight fall in the quantity of obsidian present, but to draw conclusions from a relatively small sample from a single site would be precipitate. Hassuna II (Standard Hassuna) is similarly ill-represented although one important statistic is that at Matarrah 23% of the lithics are obsidian (Braidwood *et al* 1952, 20). If Matarrah had lacked access to obsidian previously, it had now gained access. Whether this reflects a general increase in the quantity of obsidian in circulation is unknown.

In Hassuna III/Samarran there is little more information. The lithic assemblage at Tell Shimshara varies slightly in all the levels with large samples but overall it is 87.6% obsidian, only 20.4% of it green and, therefore, from group 4c. The four samples of grey obsidian analysed are all from group 1g. It would be surprising if most of the grey obsidian is also group 1g as the source of that group is usually assumed to be to the west of Lake Van (although see Renfrew 1970, 141).

It has been noted that most of the analysed material from group 1g occurs in this period or earlier (Wright 1969, 24; Renfrew and Dixon 1976) although it now seems that, in later periods, it was not totally abandoned in Iran at least (Blackman 1984, 34-35). It is probably significant that, compared with later assemblages, Umm Dabaghiyah has a relatively high proportion of grey obsidian (43%) and that four pieces of group 1g obsidian are known from Bouqras out of the six analysed samples. This does not necessarily suggest that Shimshara may have been near the group 1g source and had easier access to it. Group 1g was a very

important obsidian source in the Hassuna over much of northern Iraq and north-eastern Syria and the mechanism of supply from it may have been very efficient.

The very high quantities of obsidian at Shimshara invite an explanation. Renfrew suggests that "... Shimshara was on the periphery of the eastern Anatolian supply zone, and clearly had a very efficient supply mechanism ... The possibility thus arises that Tell Shimshara was ... in fairly close cultural contact, rather than simply in trading contact, with the inhabitants of the supply zone and the area occupied by the obsidian sources of eastern Anatolia" (Renfrew 1970, 141). This seems a reasonable hypothesis and it is very unfortunate that we have so little evidence from north-west Iraq as to whether this efficient supply mechanism was functioning further west. It is notable that, at Shimshara, there were considerable quantities of obsidian cores and debitage. In fact a higher proportion of the flint was utilized for retouched tools than obsidian, a complete reversal of the more common position (Mortensen 1970, 41). One possibility must be that the source of group 1g or 3a obsidian is closer to Shimshara than has generally been thought. Whether Shimshara and other sites in the area were then acting as a redistribution centre is unknown but possible.

Unfortunately there is little information from other sites in this period. Tell es-Sawwan had obsidian from both group 4c and group 3a (Zernaki Tepe?) but as what proportion of the assemblage is unclear. Although the relative chronological position of Choga Mami is outside the scope of this study, it is worth noting that small quantities of obsidian occur in the assemblages (2.6-5.7% in the Samarran, Mortensen 1973, 38, n.12). Most of this is either of group 1g or from Nemrut Dag (Epstein 1977, 96). The only north-eastern Iraq site with any data is the very small sample from Khirbet Garsour where obsidian is as common as flint and is largely green in colour. The sample from excavated contexts, however, is so small as to forbid any definite conclusions.

Site	Level	Obsidian	Notes	Reference
Sabi Abyad	Early Halaf	19.5%		Copeland 1989, 252, 259

Table 8.7: Quantity of obsidian at Halaf I sites

Halaf I

Again very little is known about the frequency of obsidian from early Halaf sites. At Sabi Abyad, there is certainly a slight increase in the quantity of obsidian. Most of it is green and, therefore, from group 4c (Nemrut Dag and Bingöl). However, in north Iraq and north-east Syria, where the evidence is best for the increased importance of obsidian in earlier periods, there is little information.

Site	Level	Obsidian	Notes	Reference
Halaf II				
Yarim Tepe II	Unspec.		"Obsidian ... noticeably predominant over flint"	Merpert, Munchaev and Bader 1977, 94
Yarim Tepe II	8-9	34%	Obsidian tools 3 times as common as flint	Merpert and Munchaev 1987, 27
Tell Aqab	All	80%		Davidson and Watkins 1981, 11
Shams ed-Din	All	11.2%		Azoury and Bergman 1980, 127
Arpachiyah			"Obsidian ... quite as common as flint"	Mallowan and Rose 1935, 102
Girikiyacian		24%		Watson 1983a, 572
Banahilk	All	29.2%	Green obsidian most common	Watson 1983a, 570-571
Umm Qseir		42%	Mainly finished blades	Hole and Johnson 1986-87
Tell Hassan	1a	37%		Bulgarelli 1981, 291
Tell Hassan	1b-2	26%		Bulgarelli 1981, 291
Tell Hassan	3	39%		Bulgarelli 1981, 291
Tell Hassan	4	25%		Bulgarelli 1981, 291
Halaf-Ubaid				
Khirbet Derak	Gen		Obsidian quite common, no cores	Forest 1987, 84-85
Songor B	II	1.6%	Sample of 451	Ohnuma 1981, 198
Songor C	I & II	0.8%	Sample of 2,761	Ohnuma 1981, 199
Kurban Huyuk	VIII	0.2%		Marfoe <i>et al</i> 1986, 65

Table 8.8: Quantity of obsidian at Halaf II and Halaf-Ubaid Transitional sites

Halaf II

There is much better information available for the latter part of the Halaf sequence. Obsidian is consistently very common. The exact frequency ranges widely but in north Iraq and north-eastern Syria it ranges from above 30% of the assemblage to the remarkable height of 80% at Tell Aqab. Undoubtedly obsidian in this quantity must be an integral part of the economy. Its fall-off away from the sources occurs much more gradually. In the Hamrin, at Tell Hassan which is at least 500 km from the sources, it makes up at least 25% of the lithics in all of the levels and as much as 39% in level 3 (Bulgarelli 1981, 291). This contrasts with the, admittedly very small, assemblage from the Samarran levels of Tell Songor A where there was no obsidian and 27 pieces of flint (Ohnuma 1981). The exchange network may extend far more effectively into the southern extent of the Halaf than it did previously.

It is notable that in western Halaf sites obsidian is rarer. It makes up only 11.2% of the Shams ed-Din assemblage at a site which in other ways is very comparable to the like of Umm Qseir on the Khabur where there is 42% obsidian. At Tell Sabi Abyad, although there is an increase in the quantity of obsidian over the previous phase, it still only makes up 19.5% of the total lithics; again it is largely green and, therefore, of group 4c. It is entirely possible that the trade routes from the group 4c sources to these sites ran through north-east Syria, and possibly even north Iraq from the Tigris valley, and that these sites were on the end of a very long trade route. The low quantity of obsidian at Girikiyacian (24%), which is quite close to obsidian sources, may also support the idea of a rather circuitous trade route rather than everywhere obtaining their obsidian from the closest source.

At most sites the obsidian occurs largely in the form of blades or blade products with very little evidence for their production on site. This is the case at Umm Qseir (Hole and

Johnson 1986-87), Tell Aqab (Watkins pers comm), Kharabeh Shattani (personal observation), Shams ed-Din (Azoury and Bergman 1980) and Banahilk (Watson 1983a, 570-571). Cores and core preparation products are either rare or nonexistent leading to the obvious suggestion that blades or prepared blade cores were imported into the sites (e.g. Hole and Johnson 1986-87). At Shams ed-Din, different blade production methods are suggested for obsidian and flint, again pointing to the possibility of different origins (Azoury and Bergman 1980, 130-131). However, whether the preparation was carried out at source or at some intermediate point has not been clarified. A much better indication of the form that the obsidian trade took is, however, now emerging from a restudy of the material from Arpachiyah.

A large quantity of obsidian from Arpachiyah was examined in the Institute of Archaeology, London. All of this material is unstratified. However, in view of the areas excavated by Mallowan, it seems certain that it is almost all from Halaf levels. Much of it may obviously come from all parts of the long sequence but it seems likely, if unprovable, that much (and possibly all) may come from the TT6 Burnt House. Mallowan noted thousands of pieces of flint and obsidian here (Mallowan and Rose 1935, 105). It is unlikely that, if Mallowan was keeping any lithics, he would not keep them from here; the only stratified lithics known from Arpachiyah come from the Burnt House. It is unfortunate that this cannot be proven and the potential mix of a wide range of phases does limit the certainty of any interpretation. However, the evidence of the obsidian colours is sufficiently clear cut as to suggest that it holds generally true for much or all of the sequence, regardless of any fine changes which may be obscured.

The writer makes no pretence to be a lithics expert and the object was to assess the general ratios of green to grey obsidian in the assemblage rather than make any attempt to analyse it in detail. For both these reasons, a simplistic division of lithics types was adopted, although the material is definitely worthy of more detailed study. The assemblage could be broadly divided into blades/bladelets (and tools made on retouched blades) and debris from blade core preparation. The latter group consisted of primary and secondary core preparation, some of the former retaining the outer surface of obsidian nodules (patinated, smoothed and abraded), and some irregular flakes, presumed to be the result of core preparation as well. A sample of obsidian was taken from each drawer in which the material was stored. An attempt was made to try to take a random sample but pieces were excluded if the writer was unsure in which of the two groups a piece fitted; such pieces were fortunately rare. Each piece was then examined in transmitted natural light to see the colour which was categorised as having a green tinge or not. Almost all of those which were not green were grey but a few were colourless or opaque. In addition there were a small number of cores but it was impossible to examine their colour systematically in transmitted light due to the thickness of the obsidian. Certainly both green and grey obsidian cores are present.

	Green	Grey	Green %	Grey%	Ratio
Core preparation	210	11	95%	5%	19:1
Blades	457	109	81%	19%	4:1
Bladlets	64	50	56%	44%	1.3:1

Table 8.9: Colours of obsidian from Arpachiyah

The results show a clear and marked pattern. Amongst the core preparation sample, green obsidian outnumbers grey by a ratio of 19:1. In the finished blades the equivalent ratio is only 4:1. Amongst bladlets, grey obsidian was almost as common as green. Although the peralkaline, green obsidian is clearly the major type overall, the differences in the amount of grey obsidian is obvious. Green obsidian from Bingöl or Nemrut Dag was being imported and worked on site, at least some of it from raw nodules. Grey obsidian was being imported almost entirely as blades or as prepared blade cores, almost certainly from the sources of group 1g and group 3a (Zernaki Tepe?), both sources being known to occur at the site.

This seems to reflect two different types of exchange. Some, at least, of the green obsidian was being taken from the source to the site, by whatever type of exchange, as a raw material—either as raw or minimally prepared nodules. Grey obsidian must have been prepared at another site or sites and traded from there. While it would be possible to propose several models which might fit this data, perhaps the most likely is the one suggested here. Green obsidian was being imported more or less direct from the source; the access to the primary source material or to an exchange network in which it was freely available was directly or indirectly controlled by Arpachiyah. The material was being processed there into blade or blade core form and traded on into surrounding sites. Another site, or sites, must be postulated which was fulfilling the same role for grey obsidian; importing it, processing it and trading it on. This suggests that a system was operating which included multiple primary centres of importation which then transferred the obsidian on to other sites. This approximates to Renfrew's distributed exchange system.

In general this fits well with other information from Halaf sites discussed above. At almost all, obsidian appears to have been imported either as blades or as prepared blade cores. It must have been from sites such as Arpachiyah that these items were obtained. It is possible, but far from certain, that the volume of such exchange was great enough to indicate that the procurement and initial processing of the material was carried out by full-time or part-time specialists.

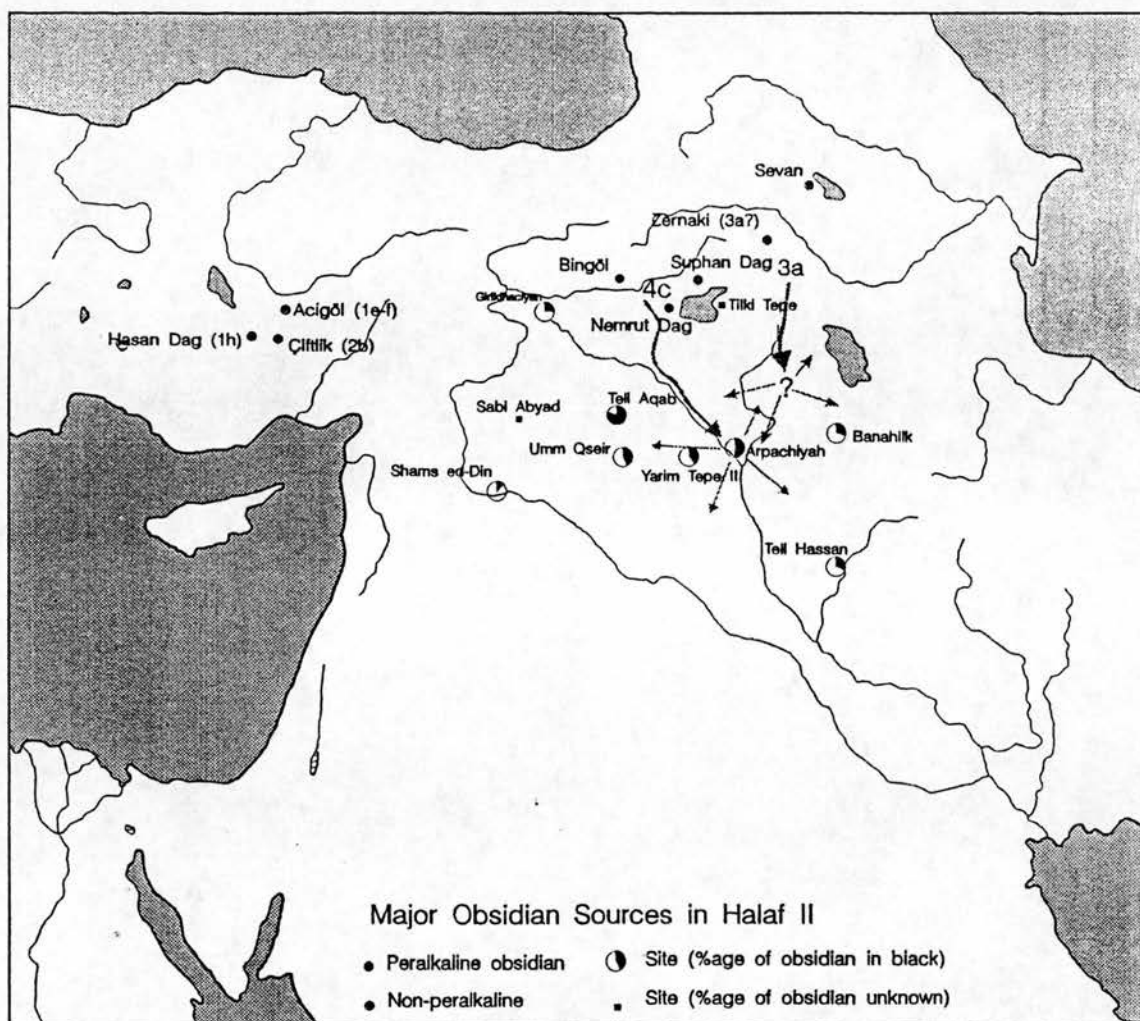


Fig. 8.1: Schematic Halaf II obsidian distribution and exchange network

It is perhaps coincidental, but nonetheless significant, that it is in Halaf II that the site of Tilki Tepe seems to have been founded on the eastern shores of Lake Van (Korfman 1982). Given that this is the opposite shore from the Nemrut Dag obsidian sources and also distant from the potential source at Suphan Dag, it is clear that the site was not simply a base for a quarry. Equally, since it had obsidian of both group 4c and group 3a and possibly 3d (Wright 1969, 22), it was not simply exploiting one source. The huge blade cores which were discovered might mean that it was assembling materials to take or remove back to north Mesopotamia as a sort of trading entrepôt. However, such explanations are possibly too specific to be other than speculative. It is more likely that the presence of Halaf pottery, and potentially the other aspects of Halaf culture, is symptomatic of the close relationship between the original Halaf areas and the obsidian source areas. The appearance of Halaf pottery in Transcaucasia is equally suggestive of penetration of Halaf influence and contacts in Armenia. We must presume that Tilki Tepe was only one of many settlements which

might or might not have been permanent. These settlements may have been genuine colonies in an area of important raw resources or they may have been the traditional inhabitants who took on some or all of the major Halaf attributes through long and close contact. What seems certain, given the evidence of Arpachiyah, is that they had a close relationship with north Iraq, and possibly north Mesopotamia as a whole, and that there was probably a considerable degree of economic inter-dependence between the two areas.

It is worth a little speculation at least to look at some of the questions raised by the obsidian exchange system in Halaf IIb. A few central sites were importing material as obsidian nodules, processing them and trading them on to the surrounding areas as blades and/or blade cores. The centres must, presumably, have had a high degree of contact with the source areas and, to some extent, control over the access to them. The precise relationship between the distribution centres, such as Arpachiyah, and the supplying sources is interesting. Are they directly controlled in any way? Is the material being shipped direct to Arpachiyah from Nemrut Dag and Bingöl or are the nodules being imported through another trading system? Does the fact that it seems preferable to import nodules, rather than cores prepared at the source, suggest few settlements existed near the sources, or that the necessary technology or the necessary control over the markets only existed at centres such as Arpachiyah? Some exchange took place between central sites so that grey obsidian blades appear at Arpachiyah. Was it as cheap to import obsidian from another site as to obtain it direct from source? Is the cost of procurement separate from its value in exchange, with the obsidian being used as gift or prestige item?

Summary

There seems good evidence for a high degree of sophistication in the obsidian distribution network in the later Halaf. However, it is important to avoid assuming that this was unique to Halaf II. We happen to have much better evidence for this period but we do not know when this sophistication started to emerge. Tell Shimshara was able to obtain large quantities of obsidian over a long period in Hassuna III and appears to have been working the material on site. Over 20% of the lithic assemblage at most Proto-Hassuna sites is obsidian. Even earlier, Magzaliya was able to obtain over 50% of its lithics as obsidian in all but the last level of the site. In all of these instances the obsidian supply must have been regular, although not necessarily in involving huge quantities of material. The procurement mechanisms may, at times, differ in scale from those of the Halaf but we do not know if they differed in kind. It is probable that in all cases a form of distributed trade was taking place. Undoubtedly we can detect in north-west Iraq and north-east Syria, in particular, a system of long distance trade which must have ensured a steady movement of materials, contacts and ideas over a very large area. The social mechanisms to control it must have been shaped by, and possibly have shaped, the society in which it functioned. This system may be unique. Obsidian may have

been the only item traded over long distances in this way. It may, however, simply be the best preserved and most prominent example amongst several.

Short Distance Exchange

Pottery

Like obsidian, characterisation of the sources of pottery has a long history. In general, this has involved either chemical characterisation or petrography. In the late Neolithic in north Mesopotamia only the former has been employed to any degree. The basic hypothesis is that the variation within a clay source will be greater than that between sources and that that difference will be reflected in the trace element composition of the pottery produced from them. Therefore, pottery produced from different clay sources at the same or different sites will have a characteristic 'finger-print'. This hypothesis has largely been justified by the basic studies (Perlman and Asaro 1969; see summaries in Wilson 1978 and Bishop, Rands and Holley 1982) although there are a number of potential complicating factors which will be discussed. Such characterisation offers the hope of differentiating between pottery produced locally at a site and pottery imported to that site. If a clay source matches the imported pottery, the details of ancient ceramic exchange may be obtained.

There have been two main studies carried out which are relevant here. Le Mière and Picon have used X-ray fluorescence (XRF) to examine proto-Hassuna and contemporary ceramics (Le Mière 1986; Le Mière and Picon 1987). Davidson used neutron activation analysis (NAA) with Halaf pottery from the Khabur head-waters and the Mosul area (Davidson and McKerrell 1976, 1980; Davidson 1981).

Le Mière studied material from a number of early ceramic sites in north Mesopotamia and the northern Levant. Most significantly here, quantities were studied from Umm Dabaghiyah and Bouqras. Most of the sherds from each site fell into relatively clear groups which were interpreted as being characteristic of local manufacture. At each site, there was also a small but significant number of sherds which were different from any others from the site. These were interpreted as being imported. At Bouqras groups 3 and 5 were considered to be probable imports, the former perhaps from a single source and the latter from diverse sources (Le Mière and Picon 1987, 136). At Umm Dabaghiyah six out of the 42 sampled sherds were possible imports. Le Mière concluded that the import of pottery was most frequent with the finer wares and that it could occur on a significant scale.

Davidson's study of the Khabur area (Davidson and McKerrell 1976; Davidson 1981) included pottery from the excavated sites of Chagar Bazar and Tell Aqab, pottery collected from the surface of several other sites and samples of clay taken from the wadi system, the most likely source of potting clay. It was successful in isolating groups of pottery which were probably produced locally. Some sites had pottery of a single composition which was considered local while some, like Tell Aqab, had more than one. In the cases of Tell Aqab

and Chagar Bazar, these putative local groups were successfully correlated with nearby clay sources. In addition to these groups, there was a considerable quantity of pottery which was very different in composition from the local material. This is likely to be imported to the site. Chagar Bazar was almost certainly the major, but not the only, source of much of this imported pottery. It was suggested that Tell Aqab was importing 5-10% of its pottery from Chagar Bazar (Davidson 1981, 75).

In the Mosul area, Davidson examined pottery from Tell Arpachiyah and Tepe Gawra. At Arpachiyah, he suggested that three different clay sources were used, one in each of the classic early, middle and late Halaf ceramic phases (Halaf Ib-IIb). He further concluded, on the basis of the close compositional similarity, that 30-40% of the Tepe Gawra pottery was imported from classic late phase Arpachiyah (Halaf IIB). Some further evidence, testifying to the importance of Tell Arpachiyah in the Halaf IIB phase, is the single sherd from Kharabeh Shattani which a small programme of NAA suggested may have been imported from Tell Arpachiyah, 50 km distant (Campbell 1986).

These studies, however, should not necessarily be accepted uncritically. Although this is not an attempt to discredit them, it is important to acknowledge that the conclusions in these studies should be subject to some reservations. Davidson's study was carried out in the early days of NAA. Because the samples were irradiated and counted in different places, only eight elements were determined (Davidson 1977, 45-46). More recent studies have typically determined at least 17 elements (Campbell 1986 and forthcoming c). Fortunately, the elements used by Davidson have generally been found amongst the more useful discriminants in NAA of ceramics, although one of them, iron, may be susceptible to alteration by post-depositional processes and another, cobalt, may be contaminated by some diamond drill bits (Carriveau 1980; Topping and MacKenzie 1988, 97). Similarly Le Mièrre and Picon have used a relatively small number of elements, including potassium which may be affected by clay refining (Bishop, Rands and Holley 1982, 296) and calcium which is a frequent clay inclusion and subject to loss during firing. These potential limitations in both studies may lessen the ability to distinguish between sources and increase the likelihood of mistakenly conflating two separate compositional groups. However, where the groups are clear, as in most cases they are, and, in particular, where they make archaeological sense the analyses can be accepted with appropriate qualifications.

The interpretation of these compositional groupings is the second issue. In the early years of NAA, the assumption that a compositional group was equivalent to a clay source was generally accepted. With more recent work, however, it has become apparent that this may be superficial. The basic composition of a clay can be modified by many factors in the process of becoming pottery. The levigation of the clay, the addition of temper (organic and inorganic) or other clays, liquid additives and firing can all influence the composition of pottery. The addition of temper does not seem to be a problem with most Halaf pottery, where none is visible, but it does occur in some, and definitely occurs in early Ceramic

Neolithic material. Arnold, Neff and Bishop (1990) have studied these effects in an ethnological context and concluded that "the compositional profile of a ceramic encodes both natural and cultural information" (Arnold, Neff and Bishop 1990, 84). The relationship and balance between the two may be very complex. This makes it dangerous to conclude, without great care, that simply because a sample does not match 'local' sherds in composition, it must be an import.

An alternative hypothesis to that of different clay sources being used at Arpachiyah is, therefore, that there were changes in the manufacturing process. Although Davidson does not specify the fabrics of the sherds analysed in detail, some changes are probable on the evidence of other sherds from the site. Early Arpachiyah ceramics (pre-TT10) certainly have more white inclusions than later examples. Late Arpachiyah fabrics may be especially fine, possibly with more levigation or processing of the clay. Alternatively, liquid additives may have been changed (beer, milk, urine and dissolved salts are all attested ethnographically in addition to water). Thus the apparent difference between Tepe Gawra and Arpachiyah could be explained, if one wished, as being differing manufacturing techniques within an area (or watershed?) with chemically very similar clays. Alternatively, the similarity between the fine Gawra sherds and the fine Arpachiyah sherds could be a coincidence of manufacturing rather than a common source. Although these possibilities are perhaps less likely than the conclusions proposed by Davidson, they remain conceivable. Until more intensive work has been done, the quantitative number of imports in Le Mièrè's study must be treated with some caution, although the general conclusions regarding the presence of at least some imports cannot be doubted.

We can accept Davidson's conclusion with fewer qualifications in the Khabur area because of the unusually close agreement between some of the local clay sources and the pottery from Chagar Bazar and Tell Aqab; an unlikely coincidence if these groups were not defining real sources.

Having stated these reservations, it is still possible to make some tentative statements from these studies. In the Proto-Hassuna, at Umm Dabaghiyah and the broadly contemporary Bouqras, at least some of the ceramics are likely to have been imported. There may be a considerable quantity. Both the analysed sherds of Archaic Hassuna pottery from Bouqras are marked out as potential imports, possibly from a considerable distance to the north-east where Archaic Hassuna is much better attested (Le Mièrè and Picon 1987, 136). Some of the other probable imported pottery may have had a much more local source.

By the Halaf period the picture is clearer in the Khabur area for the later Halaf (Halaf IIa and IIb) but there are at least some hints which suggest it may also have existed earlier. Certain sites, Chagar Bazar and possibly Tell Halaf, are exporting considerable quantities of pottery to the surrounding area, presumably on a regular basis. The range of vessel types involved in this trade is informative (Davidson 1981, 75). Although full details are not published, they include two types; painted jars, including a very rare polychrome example,

and a rare type of shallow plate with flaring walls. The only two examples of the latter type sampled from Tell Aqab (Davidson 1981, fig. 7.1 and 7.2) are both apparently imported from Chagar Bazar. Polychrome jars seem to have been a typical Chagar Bazar export to other sites in the area (Davidson and McKerrell 1976, 52). A third type of pottery which, it was suggested, was imported as a whole from another site are the vessels decorated in three colours. The three examples found at Tell Aqab were all analysed and appear to have been imported from a source other than Chagar Bazar; two from the same site and one from another.

In the Mosul area, it is better to temper Davidson's conclusions with some caution until they can be confirmed. Gawra may have received a very high proportion of its pottery from Arpachiyah or another site in the general area of Arpachiyah. If this is so, it is significant that specific types of vessels, including almost all the fine open bowls, but not confined to them, were being imported to the site. The possible imported vessels do not include any jars so we can largely exclude the possibility that it was vessel contents rather than the pots themselves which were being imported.

In both cases it seems significant that the manufacture of specific classes of vessel was confined to specific sites. It may suggest that access to certain technological skills were confined to certain settlements or social contexts. Such techniques may have been limited to specialists or they may have been dependent on a high investment of labour, perhaps the construction of sophisticated kilns, which only took place at sites already central in some other regards. It is also possible that the manufacture of some vessel types at a restricted number of sites had a cultural reason. A bowl used for a specific function might only have been suitable for that function if it was an 'Arpachiyah' bowl.

Arnold has noted the tendency of pottery distribution to grow up where an existing network exists and to be based at or close to the central point in that network (Arnold 1985, 165-166). Given the suggested role of Arpachiyah as a central part of the obsidian distribution system and the evidence for economic control of the Burnt House, Davidson's late Halaf evidence accords very well with this. Arnold additionally points out several cases where ceramic export as part of an existing exchange network can lead directly to specialisation (Arnold 1985, 166) but whether this is the case in the late Halaf is conjectural. The combination of frequent ceramic export to a number of sites and mastery of certain techniques of restricted availability, however, does make the possibility emerging specialisation attractive.

Discussion

In both the chosen examples of exchange systems, we can see a much clearer picture in Halaf II than in earlier periods. Although we know a certain amount about earlier exchange systems, it is difficult to compare them directly with the Halaf II period because we lack

specialist studies and, particularly, sites equivalent to Arpachiyah for these periods. We cannot assume that as yet undiscovered sites such as Arpachiyah existed earlier but it would be unwise to dismiss this possibility. It seems more sensible to interpret the late Halaf evidence first, and then attempt to see where we can identify clear changes or similarities in the earlier periods. Although we will not be able to understand the variety and significance of earlier exchange systems to the same extent as those in the Halaf II period, we may at least be able to point to potential areas of change. This discussion will also be largely descriptive. The role exchange networks may have played in the development and structuring of society will be discussed in more detail in chapter 11 integrating other cultural information.

By the Halaf II period there were clearly quite large scale exchange networks functioning in a relatively sophisticated manner. Large numbers of settlements seem to have been dependent on certain centres not only for access to supplies of particular raw materials, such as obsidian, but also for the manufacture of specific items, such as polychrome pottery. There must have been at least a two level settlement hierarchy in this exchange system. Some sites had more or less direct access to obsidian in its raw form, others did not. Some sites possessed a higher level of ceramic technology than others. Many details remain unclear. Whether sites with direct access to obsidian and those with more developed potting techniques were one and the same in all cases is uncertain. We cannot tell whether obsidian and pottery were the only items exchanged in this manner. It seems unlikely that they were, but we have no direct evidence for other items being exchanged in the same quantities. Equally, at present there is no way of knowing if other items were exchanged in a completely different manner; there may have been different types of exchange being carried on concurrently with those we have isolated. Similarly, whether there were more than these simple two levels of settlement in the hierarchy and whether they were present outwith north Iraq and north-east Syria is not yet known.

Although little information is available for most of the period between the Proto-Hassuna and Halaf II, there are indications that the extent of the exchange system was considerable. Obsidian quantities are high wherever they are known and the absence of significance quantities of waste or cores at most sites suggested that a similar distribution pattern may have existed. Although no detailed pottery studies have been undertaken in this period, the circumstances in which a significant degree of pottery exchange could occur certainly existed. There is considerable variety in the types of pottery present, with a range of differences in both technology and elaboration of decoration. This suggests that potentially there was differential access to the various types of ceramics, a prerequisite of although not inevitably resulting in pottery exchange. Importantly, as obsidian and pottery are only being taken as examples, there are other materials which are likely to have been exchanged. These include both utilitarian material, such as basalt for ground stone tools, and more exotic items. Amongst the latter, metal is particularly noteworthy as it occurs in greater quantities in the late Hassuna than in the late Halaf. This includes both copper and lead, the latter, at least,

smelted (for summary of this see Müller-Karpe 1991). While metal is unlikely to have had major economic significance and there is, as yet, no evidence that it was a particularly valuable material, it nonetheless cautions us not to assume that the range of exchange networks was necessarily more restricted in every regard than in Halaf II.

In the Proto-Hassuna, we do have more evidence for both pottery and obsidian exchange. Some pottery seems to have travelled between settlements but there seems little evidence that the percentage of imported ceramics at any one site had a major economic significance although the significance of very small quantities of fine imported wares may have been more subtly important. Obsidian seems to be a universal import in north Iraq and north-east Syria. It not only makes up a significant proportion of the lithic assemblage at many sites but certain tools types are mainly or exclusively made from it. It would seem that an exchange network of considerable reliability was already in existence and the form in which the obsidian occurs suggests that we should postulate centres, at the sources or in northern Mesopotamia, redistributing obsidian to other settlements. Although it seems to have operated on a smaller scale, there is no evidence that this exchange system was fundamentally different from that of Halaf II. There is evidence of other imported materials. Basalt and other uncommon stones appear at many sites and are likely to be imported from varying distances in most cases. The graves of Tell es-Sawwan level I, in particular, contain an impressive array of material. Although much of this seems comparable to Halaf II, in nature if not in quantity, there seems to be one major difference. The exchanged items, with the exception of small and economically rather insignificant quantities of pottery, are all basic resources whose availability is restricted to specific locations. The exchange system is extending access to these resources. There seems to be little evidence, as there is in the late Halaf, for manufactured products being the objects of exchange. This change could be seen as one of the necessary steps towards the development of specialists. Given the small number of people that can have been present at any one site, only a very limited degree of specialisation could have existed without extensive exchange with neighbouring settlements.

The potential existence of trade in the Halaf over a very large area is well known. Davidson, in particular, has argued that its existence was a critical factor in both ensuring the spread of the Halaf tradition and maintaining the continuity in this tradition over a very wide area (Davidson 1977). Here I have stressed not just the geographical continuity in the Halaf tradition but also the potential regional variations within it, and in the Hassuna III tradition, which it is now possible to recognise are often based on specific choices in how the available symbolism is used. The existence of an extensive exchange network is no less important in creating and preserving these regional variations than in maintaining continuity. It is through

frequent opportunities for interaction and the comparison of objects that the development of styles, symbolising particular group affiliations, seems most likely to develop.

Chapter 9

Burial Practices in the Late Neolithic

Introduction

Burials have been studied by archaeologists for many reasons. In the last twenty years they have increasingly been studied to obtain information on social structure. The initial theoretical basis was established by Saxe (1970) and Binford (1971) and this has formed the basis for much subsequent work (see Brown 1981 and O'Shea 1984 for a basic endorsement of the Binford/Saxe position). The basic hypothesis, supported by many cross-cultural examples, is that the social position of a period in life will be reflected by their treatment in death. It seems clear that, in particular situations, burials can be examined in this way. In a study which, amongst other interests, is concerned with how society is organised, this potential of burial evidence is important. However, it should not be forgotten that there are cases where any relationship between differentiation in burial and social divisions in life can be very indirect (e.g. Ucko 1969) or where burial practices can actually aim to obscure rank in life (Okley 1979, 86). Indeed, the Binford/Saxe position has been attacked as being an oversimplification (Hodder 1980; Pader 1982; Metcalf and Huntington 1991). Some more recent work has stressed the fact that the goods associated with a burial represent only the final stage of what may have been a much longer rite of passage. In particular, stress has been laid on the fact that it is the mourners who select the grave goods rather than the deceased and their motifs may be very varied (Barrett 1988; Bradley 1990, 94).

The study of the burial patterns can, perhaps, be looked at in two steps. Firstly, to recognise regular patterns of burial and, secondly, to interpret them if this appears feasible. Not all interpretation need be in terms of social hierarchy and, even if no compelling social interpretation can be offered, comparison of patterns through time can be extremely valuable as an indication of continuity or discontinuity in 'ritual'.

There are potential advantages in examining burials rather than other archaeological remains. Unlike most other deposits, undisturbed burials are deliberate cultural contexts. Items associated with a burial are not discarded or lost but deliberately placed. Whether it is

connected with social hierarchy or not, there is an inherent symbolism in the burial and its grave goods.

A more practical advantage of burials is that they are more consistently reported in the brief preliminary reports, from which most sites are known, than most other classes of information. Even so there are several severe limitations which apply to everything which follows. Although, at this date and slightly later, cemeteries are known in the south of Mesopotamia at Eridu (Safar, Mustafa and Lloyd 1981; Vertesalji 1984; Pariselle 1985) and, in the Hamrin, at Tell Abada (Jasim 1985), it is doubtful whether there are any examples in the north in the late Neolithic. The burials at Tell es-Sawwan I are the only probable exception. Therefore, we are often dealing with small numbers of burials from different sites, which may vary in time, often to an unknown degree. Not only are they usually a small sample, it is certain that they only represent a portion of all the burials made by the inhabitants of a settlement. The burials known to us already only represent a selected sample of the total population of burials. The burials within a settlement may also come from differing social or ritual contexts; there may be many different circumstances surrounding each of the burials which may influence their nature, and when we have only individual examples of burials we cannot be sure what represents a variation within a unified burial rite and an individual occurrence of completely different rites. Indeed, the small samples warn against making any too subtle interpretations (see Orton and Hodson 1981, 113-114 for a discussion of the size of samples needed).

In addition there are the usual difficulties of different standards of publication. As noted above, burials are usually published to some extent but which details are published can vary widely. Grave goods are probably most commonly published, followed by orientation and type of grave. However, there is very little adequate information on age and sex, apart from the differentiation of infants and adults, and these aspects, unfortunately, will have to be largely ignored although their potential influence must be remembered at all times.

Perhaps the greatest difficulty is caused by the uneven spread of the evidence. Because significant numbers of burials have only been found at sites where there have been major excavations, there are even greater lacunae in the data than with other categories of evidence. Thus, there is very little mortuary evidence from Syria or Turkey in this period and we are forced to concentrate on Iraq and the interpretations are only really valid for this area. The usual gaps in time are also present so that there is almost no evidence from Halaf I or from Hassuna III in north Iraq. Because of these gaps, the strict chronological organisation used elsewhere is abandoned here. A looser framework divided into Samarran (mainly Tell es-Sawwan), Hassuna and Halaf is employed instead. In several cases, where a site has produced only one or two burials which do not extend our knowledge significantly, they are not discussed in detail below. Rather than list the many burials individually, table 9.1 indicates the number of burials from each site together with bibliographical references. Where appropriate further details are included in the main text.

Site	Level	Number	Reference
Hassuna/Samarra			
Yarim Tepe I		29+	Merpert and Munchaev 1971, 16; Merpert, Munchaev and Bader 1977, 73; Merpert, Munchaev and Bader 1978, 31; Munchaev and Merpert 1981, 84; Merpert and Munchaev 1987, 9
Tell Sotto		7+	Merpert, Munchaev and Bader 1977; Merpert, Munchaev and Bader 1978, 46-47
Tell Hassuna		7+	Lloyd and Safar 1945, 267-268, 271-273
Telul eth-Thalathat	XV	2	Fukai, Horiuchi and Matsutani 1970, 29-30
Tell es-Sawwan	I-II	220+	El-Wailly and Abu es-Soof 1965, 25-28; Al-Adami 1968; Yasin 1970
Tell es-Sawwan	III-V	24+	Wahida 1967, 175; El-Wailly and Abu es-Soof 1965, 24; Yasin 1970, 7; Abu es-Soof 1968, 5-6
Samarra			Herzfeld 1930
Tell Songor A		2	Fuji 1981, 169-170
Halaf			
Yarim Tepe I		4+	Merpert and Munchaev 1969, 129; Merpert and Munchaev 1971, 17
Yarim Tepe II		28	Merpert and Munchaev 1969, 131; Munchaev and Merpert 1971, 31; Merpert and Munchaev 1973b, 14; Merpert, Munchaev and Bader 1976, 51; Merpert, Munchaev and Bader 1977, 91-93; Merpert, Munchaev and Bader 1978, 40; Merpert, Munchaev and Bader 1981a, 26; Munchaev and Merpert 1981, 204-205; Merpert and Munchaev 1987, 25
Yarim Tepe III		4	Munchaev, Munchaev and Bader 1984a, 37; Merpert and Munchaev 1984b, 56-57 and 61
Arpachiyah		12	Mallowan and Rose 1935, 42-43; Hijara 1978
Chagar Bazar	6-12	9	Mallowan 1936, 44-45, 59
Girikihacian		4	Watson and LeBlanc 1990, 121-122
Tepe Gawra		27	Tobler 1950
Kharabeh Shattani		2	Baird, Campbell and Watkins forthcoming
Tell Azzo		?	Killick and Roaf 1983, 235
Çavi Tarlasi		18	von Wickede and Misir 1985
Tell Songor A		1	Fuji 1981, 173

Table 9.1: Summary of major occurrences of burials

Samarran

Tell es-Sawwan

Although Tell es-Sawwan has produced a very large number of graves (at least 245, with many more alluded to), the information published about them is very variable indeed. The division of the site into two main periods has been suggested in chapter 3; levels I and II having coarse pottery, probably analogous to Proto-Hassuna, and levels III-V dating to Hassuna III/Samarran.

Level I

In the first season's preliminary report, 129 graves from level I were published individually (El-Wailly and Abu es-Soof 1965, 25-28). Details of location, approximate age (from the size of the body rather than a full pathological examination) and grave goods are given for each with occasional additional information. The second season's preliminary report (Al'Adami 1968) contains sketches of at least 44 graves from this level, although details are often difficult to ascertain and, in the general absence of a scale, it is impossible to distinguish infant from adult burials. Also, it is unclear whether all the graves excavated are illustrated. It is, however, possible to obtain data on the orientation and position of the burials, their location in some cases, and accompanying grave goods. In the sixth season, 47 more burials were found and some details published (Yasin 1970, 7). That further burials were found in later seasons is well attested (Abu es-Soof 1971, 5; Salman 1971; Matthews and Wilkinson 1991, 180), but few details of these have been published.

There are, therefore, varying details known for a total of 220 burials from level I and their examination, even with incomplete detail, is of considerable interest. The two main sets of data are from the first and second seasons and form the basis of this analysis. The first season, in particular, provided an unselected sample.

It is not entirely clear from the reports whether the burials are all unequivocally associated with the buildings of level I. Al'Adami has argued that they are and that the buildings of level I have a funerary significance (Al'Adami 1968, 58-60). However, Abu es-Soof, writing after a later season, seems to place the burials as a separate cemetery stratigraphically distinct from the level I buildings (Abu es-Soof 1971, 5; also Breniquet 1991a, 83). With no information other than that already published, no judgement can be made here although it seems more likely that, given the distribution of the first season's burials beneath the buildings, there is some relationship between at least some of the burials and the buildings of level I.

Some factors are constant in almost all burials. The burials are in shallow, oval graves mainly beneath buildings. The skeletons are in crouched positions where known, except in very rare instances (Al'Adami 1968, fig. 4). There are a few cases of the body being wrapped in a mat coated with bitumen (El-Wailly and Abu es-Soof 1965, numbers 87, 33, 47 and 125; Yasin 1970, 7). The burials are accompanied by a large variety of material, dealt with in greater detail below, which is notable for the absence of any pottery objects in any of the published graves.

Although there has been a frequent assumption that the graves are part of an infant cemetery, comparable perhaps to that of Tell Abada (Jasim 1985), this is not strictly true. Amongst the first season's graves there are four types; 13 adult burials, 16 adolescent, 55 infant and 45 burials without bodies. In the report for that season it is suggested (El-Wailly and Abu es-Soof 1965, 23) that the empty graves may be where the bones have completely decomposed (El-Wailly and Abu es-Soof 1965; also Al'Adami 1968, 58). It is

argued below that the empty burials form a distinct class because of factors other than the absence of bones. It, therefore, seems likely that less than half of the burials from this season, the only one for which we have statistics, are definitely those of children. Nevertheless the proportion of infants is higher than might be expected for a cemetery for a complete population and may represent an unrepresentative sample of the total burials made by the inhabitants of Tell es-Sawwan.

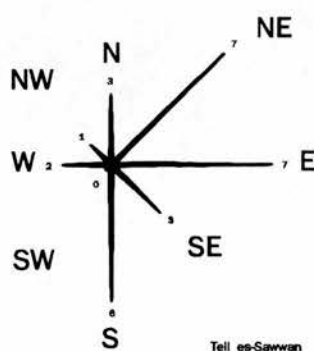


Fig. 9.1: The frequencies of orientations in Tell es-Sawwan level I burials

No individual orientations are given for burials in the first season but it is noted that most of the skeletons have the heads to the south and more face west than east (El-Wailly and Abu es-Sooof 1965, 23). There is more information on orientation from 30 of the burials from the second season (fig. 9.1). There is a single burial with the orientation known from the sixth season with the head to the east, facing south which is not included in this diagram (Yasin 1970, fig. 17). It is evident from this that, although the orientation to the south is not confirmed, there is a strong concentration (27 out of 31 burials with known orientation) to the arc from north through east to the south—or alternatively an avoidance of burials with the head to the west. The direction in which the bodies are facing seems too variable to draw any conclusion.

Almost all graves have some burial goods. The variety of objects is considerable, although pottery is notably absent; it does include stone vessels, figurines, beads of a wide range of material, pendants, stone celts, flint and obsidian blades, stone 'phalluses', stone balls and animal bones. A rough index of the 'wealth' of a grave can be made by counting the number of objects in it. Stone vessels and other objects are counted as one object. Beads are counted as a single object no matter the number, in part because the number is never given and in part because many will have come from individual objects such as necklaces. The finds in the graves and the number of objects are summarised in tables 9.2, 9.3 and 9.4.

	Adult	Adolescent	Infant	Empty	Total
Number	13	16	55	45	129
Number with vessels	13	15	54	43	125
Number of vessels	35	36	107	54	232
Max. Number vessels	8	7	4	3	
Min. Number vessels	1	0	0	0	
Number with figurines	2	2	8	6	18
Number of figurines	7	3	10	6	26
Number with beads	7	3	21	5	36
Number with a pendant	2				2
Number with an axe	1	1	2		4
Number with lithics	1		4	1	6
Number with a phallus		1	1	1	3
Number with stone balls			2	1	3
Number of stone balls			5	3	8
Number with animal bones			1	2	3
Graves with single object		4	13	27	44

Table 9.2: Summary of Tell es-Sawwan level I burial goods (1st season)

	Number	Mean	Standard Deviation
Adult	13	4.15	4.62
Adolescent	16	3.25	2.21
Infant	55	2.78	1.70
Empty	45	1.71	1.01

Table 9.3: Tell es-Sawwan level I burials (1st season). Statistical summary of number of objects per grave

	With Body	Empty	Total
Number	38	6	44
Number with vessels	36	6	42
Number of vessels	81	9	90
Number with figurines	15	3	18
Number of figurines	18	3	21
Number with beads	5		5
Number with phallus		1	1
Number Objects	104	13	117

Table 9.4: Summary of Tell es-Sawwan levels I/II burial goods (2nd season)

Several points can be made about these figures. Perhaps the most important single point is the contrast between empty graves and all others. In the first season there were approximately 3.08 objects per grave which had a body in it; there were only 1.71 objects per empty grave. The Mann-Whitney U test is an appropriate statistical test to see whether these frequencies of grave goods could be expected to have come from the same overall population (Hamburg 1979, 309-312). It makes no assumptions about the distribution of grave goods, which is certainly non-normal, and is unlikely to suggest erroneously that there is a significant difference between the two groups if none exists. A Mann-Whitney U test of the numbers of objects in table 9.3 for burials with and without bodies indicates that,

statistically, the difference is extremely significant (greater than 99.9%). This difference is further emphasised as only 20.24% of graves with bodies but 60% of empty graves had a single 'object'. The second season's graves confirm this contrast. There are also several other individual occurrences of stone vessels in the report of the second season (Al'Adami 1965, 85-90) which have not been included as it is not certain which ones were actually from burials.

These figures argue convincingly that the empty graves are indeed a distinct category and not simply like other graves but with the body decayed, although a portion of them may be of this type. As far as we know from the preliminary reports, these empty burials were dug in the same way as the others and they have the same range of objects in them. It could be that, rather than being a genuine empty burial, they represent the burials of the very youngest infants, perhaps including foetuses, which were buried with fewer grave goods and which were systematically badly preserved. Equally, the empty graves may never have had a body in them which would suggest the possibility that they have some ritual significance not primarily connected with disposal of the dead. The other 'graves' might also be such ritual deposits where a body is only a part of a wider ritual—perhaps with the presence of a body giving it greater significance and correlating with richer grave goods of other varieties. Alternatively, there may have been a ritual procedure of burying offerings which could have been used in more than one context. Although the form of the ritual was similar, the graves with and without bodies may have served completely different purposes.

Adult burials have a marginally greater number of objects than adolescents, and adolescents have slightly more than infants (table 9.3). However, further Mann-Whitney U tests suggest that these differences are not statistically significant; they may be only chance variations. In no instances are adult burials accompanied by only a single item, possibly a more significant trend. The richest adult and adolescent burials also have a larger number of objects than the richest infant burials but again the difference is marginal with the exception of Grave 25, which will be discussed below.

It is apparent that there is a considerable range in the quantity of grave goods, many of which were of high quality. This suggests that there may be a significant difference between the richest and poorest burials. It is less certain that this range can be directly related to social hierarchy. Flannery suggested that, at Tell es-Sawwan, the rich grave goods occurring with infants indicate an inherited social status and thereby a ranked society (Flannery 1972, 403; see also Brown 1981, 30). The direct equation of wealth in child burials with a ranked society seems difficult to prove in any case. In this instance it seems to depend heavily on an impressionistic rather than a quantitative interpretation of the burials. It is true that the statistical evidence suggests that infants were buried in a very similar manner to adults but without a distinct class of poorer burials it cannot be set in context. Redman suggests that small numbers of people controlled religion at Tell es-Sawwan, presumably on the basis of the level I burials (Redman 1978, 213). There seems to be no evidence to justify this.

Grave 25, with its 19 objects, is considerably more wealthy than other burials. It may be a clearer instance of social differentiation. However, the report mentions that the grave contains "at least one adult" (El-Wailly and Abu es-Soof 1965, 25) which leaves the possibility open that the apparent wealth of the burial was due to it being of more than one person. Without a full spectrum of poorer burials it is difficult to interpret the Tell es-Sawwan level I burials as indicating social stratification. Certainly they are the richest set of burials in the late Neolithic of north Mesopotamia. However, this may reflect a regional practice in which the provision of grave goods was of paramount importance or where the richness was associated with a particular site rather than where the wealth was personal or a direct reflection of the deceased person's role in life.

The association of figurines with infant burials has been suggested as significant (Abu es-Soof 1971, 5). This reference is made in the report of the fifth season, for which no information on the level I burials is published, but it is not supported by the available evidence from earlier seasons. The figures for the first season, in table 9.2, show that the portion of burials with figurines is very much the same for all ages, and indeed for the empty graves as well, and that they only occur in a small percentage of cases. Furthermore, there are considerable variations in the number of figurines per grave, with three in grave 201a (Al'Adami 1968, 60), and six in a single grave found in the first season (El-Wailly and Abu es-Soof 1965, 25). Similar figures are implied by the limited information available from the 47 burials of the sixth season (Yasin 1970, 7, figs. 34a-43). It is suggested here that, until there is clear evidence to the contrary, figurines in these burials should be considered on the same level of significance as any other artefacts. It is also possible that, as the only two occurrences of pendants were in the small number of adults graves, that pendants were only associated with a particular group of adult burials.

Level III-V

These levels at Tell es-Sawwan all have pottery of the full Hassuna III/Samarran style, and although they can be sub-divided, they will be considered together on account of the relatively small number of burials, and the frequent difficulty in telling from the publications from which level individual burials came. The graves are distinctly different to those of Level I. Grave goods are much poorer. They mainly consist of pottery vessels and beads. Only two examples of stone objects, the classic levels I-II grave good, were found and the excavators have suggested that one of these is a heirloom (El-Wailly and Abu es-Soof 1965, 24). Unfortunately, the published evidence is not comprehensive and, unlike the burials, from level I, there is not even an unbiased sub-sample available.

The evidence available suggests that the burials were almost all beneath rooms of buildings rather than in any sort of cemetery. Given the small numbers of burials, we can be confident that they represent only a portion of the total burials.

There are some general types of burial which can be identified with some confidence. Seven of the eight adult burials published are contracted in large oval pits. The exception is in a pit with the bones in a heap with the skull placed separately (Abu es-Soof 1968, 5). It may be significant that the same arrangement of bones occurred in grave 113 in level I in the first season (El-Wailly and Abu es-Soof, 1965). Three of the burials have pottery vessels as grave goods, two with a single pot and the other with two pots, and one body is accompanied by a bone awl. In two cases the bodies are wrapped in a mat covered with bitumen.

Infants burials seem more variable. The most distinct type is buried in an oval or circular, shallow gypsum vessel, often with a lid. At least five, and probably considerably more, are known (El-Wailly and Abu es-Soof 1965, 25; Yasin 1970, 7 and fig. 19; Abu es-Soof 1968, 5-6). Abu es-Soof notes that these burials usually had tiny shell beads and a miniature pot with a trough spout (Abu es-Soof 1968, 6). The only infant burial from the upper levels detailed in the first season's report has exactly these grave goods (El-Wailly and Abu es-Soof 1965, 25) and this may be a characteristic feature. Infant burials also occur in pottery vessels and in small oval pits (Wahida 1967, 175; Yasin 1970, figs. 18 and 20). In the last instance, at least, they are sometimes wrapped in mat coated with bitumen. The burial of infants in pits has only been published from level III. Burial in gypsum vessels occurs mainly from levels IV and V, although there are a few from level III as well. It seems probable that this indicates a slight change in burial practice.

The grave goods associated with the burials are of some interest. Pottery vessels, although not uncommon with either adult or infant burials, are rarely painted vessels—on individual, published examples there are seven unpainted to only two painted (see also Yasin 1970, 7). None of the published adult burials contain beads while they occur regularly in infant burials, a fact which is almost certainly significant even given the poor sample. With the exception of age, there seems little evidence from the grave goods to suggest that any social differentiation was being symbolised in burial.

Tell Songor A

There are two burials from this site. One with its head to the north-east, the other to the east. The first had a large number of grave goods—at least eight pots, a figurine, an alabaster object and a stone quern. The second had four pots.

Samarra

A considerable number of burials were excavated by Herzfeld at Samarra (Hertzfeld 1930). Unfortunately the publication makes it difficult to reconstruct either the total numbers of graves or to sub-divide them easily. Given their close proximity to Tell es-Sawwan, probably very close (Alastair Northedge pers comm), and the absence of an associated settlement, it seems possible that they represent the burials made by the inhabitants of Tell es-Sawwan. Joan Oates has suggested that it may have fulfilled a distinctive role parallel to that of the Tell es-Sawwan level I cemetery (Oates 1978, 119). Pottery vessels are much the most

common grave good. These have close parallels with material from Tell es-Sawwan III-V. The small number of stone vessels from graves at Samarra are similar to those in level I and this area may have been used for burials even during the occupation of Tell es-Sawwan I (Hertzfeld 1930, abb. b). This may be a case where we have both the set of internal burials, at Tell es-Sawwan in levels III-V and the external cemetery at Samarra. This makes it even more regrettable that the publication of both is incomplete.

The Hassuna

Tell Sotto

Nine burials were found in the Proto-Hassuna levels of this site. There are several burial types present but there are not enough of each to make sense in themselves, although it is worth noting explicitly that three of the skeletons seem to have been dismembered prior to burial (Merpert, Munchaev and Bader 1977, 74; Merpert, Munchaev and Bader 1978, 46-47). Some of the significant aspects of burial seem related to those of Yarim Tepe I and will be discussed below. Generally the burials are of infants and children, usually, but not always, without grave goods. The notable exception is burial 22 with a pottery dish with some bones in it and a necklace of fine beads, including one of copper (Merpert, Munchaev and Bader 1978, 46-47). There is a possible parallel with the infant burials at Tell es-Sawwan level III-V in burial 21, where an infant is buried in a clay basin which has been coated with gypsum (Merpert, Munchaev and Bader 1978, 46-47).

Telul eth-Thalathat

Two burials were found in the Proto-Hassuna levels of this site and probably genuinely date from that level rather than being cut down from later levels. One was an infant burial but the age of the other is unknown. Both were lying contracted on the left side. Burial S-120 was lying on a pot sherd and the skull was covered by another sherd (Fukai, Horiuchi and Matsutani 1970, 29-30). One of the Yarim Tepe I infant burials was exactly the same, and many were covered by sherds, and burial 22 at Tell Sotto was both laid on and covered by a sherd.

Yarim Tepe I

The greatest number of graves known from any site of the Hassuna culture is from Yarim Tepe I from where there are 29 burials published, although several others are referred to in print. These burials come from levels V to XII—that is from Proto-Hassuna to Hassuna II contexts. Although this limits the effective size of the sample for any part of this range, there seem to be very regular burial patterns throughout this sequence and it seems justifiable to treat all of the burials together. Examples of all the very distinctive burial types appear in widely separated levels.

Unusually, most of the graves are fully described and the skeletons aged and, in the case of some of the adults, sexed. Eleven of the burials are of children of less than one year old, with eight more under the age of 12. Although this is a very high instance, on this sample size it is doubtful whether it is outside the normal extreme range of a society with high infant mortality and need not necessarily imply that intra-site burials were selected by age. All the graves are within the area of settlement and, in some cases, were found closely associated with buildings. In only six cases are there grave goods, commonly these are pots but also include a spindle whorl, lithics, a pendant and animal bones. Even where there are grave goods, they occur in ones and twos. There is no indication of any profound social distinctions in them. Equally, there is not a clear link between the burial types suggested below and the presence of grave goods.

There are 19 infant and child skeletons (aged under 12 years), including those from double burials, where the position is recorded. Thirteen are flexed on the right, six on the left and one extended on the front. Five of the six burials on the left side are from levels X and XII, so there seems to have been an increasing emphasis on the right side through time. In contrast, although there are only three 'normal' burials of adults (14-16 years and over), all are extended on the back; additionally, the one extended burial of a child is on its front and is of a 10-12 year old, at the upper end of the category. Despite the small sample, it is probable that there was a change from burial flexed on the side, to extended on the back depending on the age at death; it is possible, although conjectural, that this occurred at puberty.

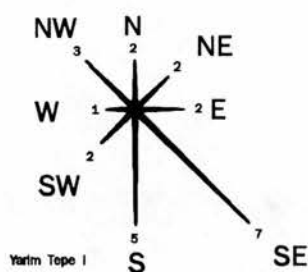


Fig. 9.2: The frequencies of orientations in Yarim Tepe I burials

Eight of the 18 flexed child burials are covered with sherds. This practice is also seen in burial 14 and, possibly, burial 22 at Tell Sotto. Orientations are recorded for 24 of the skeletons (fig. 9.2). Although no single direction predominates, 14 of the heads are orientated in a single quadrant, between east and south.

As well as the common burial of children in graves in flexed positions, there are three instances of infants of less than one year old buried in pots, one from level VIII and two from level XII (all three in Proto-Hassuna or Hassuna I levels). In the case of burial 124 in level VIII, the skeleton is recorded as 'dismembered' (Munchaev and Merpert 1981, 84). Both the level XII examples, numbers 145 and 146 are noted, in Russian, as 'broken' (Munchaev and Merpert 1981, 84) which I think probably also signifies that they were dismembered. This

would then be exactly the same type of burial as seen at Tell Sotto in burials 15 and 21. This seems a very specific link between the earlier Proto-Hassuna practices and the later Hassuna, at least as late as Hassuna I.

Similarly, as well as the three 'normal' adult burials, there are four instances, involving in total five or six bodies, of the bones of adults being found on the floors of rooms. Often these bones are partly in anatomical order and sometimes are stated to be definitely dismembered. The rooms where these bones were found seem to be unusual in other ways. The burial in level VII was largely in a small cavity in a floor in a complex exceptional in other ways (Merpert and Munchaev 1987, 9). Burial 105, in Level XI, lay within, and at the sides of, a trough which ran across the floor of a room (Munchaev and Merpert 1981, 84). Burial 134 was found in the same building as burial 105 (Merpert and Munchaev 1987, 9). Burial 131, involving two or three bodies was found on a floor together with four pots (Munchaev and Merpert 1981, 84; Merpert and Munchaev 1987, 9). Again this custom has links with other sites. Burial 19, at Tell Sotto, while not on a floor, is dismembered and in Room 4, level IV of Tell Hassuna there were two groups of human bones in cavities cut into opposite walls (see below). In many of these cases not only is the treatment of the body different from 'normal' burials, but the rooms in which they were deposited had distinctive and unusual architectural features. Although there seems to be little regularity in these features, it is difficult not to suggest that these buildings may have served some special ritual or religious function and that the bodies were deposited there in connection with that function.

Therefore, at least four different burial customs were in use, each attested in large parts of the Yarim Tepe I sequence. They seem to fit with the evidence from other Hassuna sites. We can assume at least one other burial type if we include the disposal of the large number of bodies which were not found within the settlement. This undoubtedly points to a considerable measure of social and ritual complexity. A specific interpretation would, however, seem hazardous and, currently, there seems to be no clear sign of social hierarchy in the burial customs.

Tell Hassuna

The burials found at Tell Hassuna are sparsely described in the published report. It refers to a dozen infant burials in pots, apparently in a wide variety of vessels and occasionally accompanied by a small drinking vessel (Lloyd and Safar 1945, 267-268). Presumably this includes the double infant burial, which has been suggested as being of twins (Aziz and Slípka 1966, 48-49). There is no evidence mentioned of the burials in pots being dismembered, as seems to have happened at Yarim Tepe I, and there is no sign that there were any simple inhumations of infants as at Yarim Tepe I, which may be a good indication that we should not expect the funerary rites to be entirely consistent across a whole culture—or at least across a range of sites using the same pottery.

Apart from one adolescent or adult burial which is a flexed inhumation without grave goods, the other burials at Tell Hassuna are unusual and interesting. In level Ia there is a complete adult skeleton, apparently left lying on a surface between two hearths, possibly associated with a pot and two hoes (Lloyd and Safar 1945, 271). In level III, there are two adult skeletons, one lacking a skull, in a grain bin in such a position that it was suggested that they had been thrown in (Lloyd and Safar 1945, 267, 273). There was a solitary crushed skull in a pit in level IV (Lloyd and Safar 1945, 267). Finally, and already alluded to above, there were the two groups of human bones, lacking a skull between them, in wall cavities in opposite corners of a room in level IV (Lloyd and Safar 1945, 267 and 274). All of these burials are similar to some of those of Yarim Tepe I with the disposal of adults through means other than regular burial. It seems associated with dismemberment and, in the final example from Hassuna, what appears to be what would classically be called a ritual context.

THE HALAF

Arpachiyah

Nine graves were published by Mallowan and Rose from the 1933 excavations, and a further three by Hijara from his excavations of 1976 (Mallowan and Rose 1935, 42-43; Hijara 1978, 125-128). In his publication of the latter, Hijara makes particular reference to their ritual significance at the centre of the site (Hijara 1978, 127). While I disagree with Hijara on the exact significance of the central area of the site (chapter 10), it is true that the occurrence of three of the 1933 burials and all of the 1976 burials in this area is important. This is especially so as they all lie at high levels in the tell, although their exact period of burial is less certain. They may well have been cut during the period in which the TT6 Burnt House or the possibly related structures of TT7 and TT8 were in use. This would firmly associate them with a prestige area of the site. In contrast, there seem remarkably few burials from elsewhere on the site and most bodies must have been disposed of elsewhere.

The burials which Mallowan found were relatively unexceptional. Three were infant burials, the others probably adult. They were crouched on the side with no clear preferred orientation. The quantities of grave goods show some tendency for the infant burials to be poorly equipped, only one having any objects. The probable adult graves 51, 54 and 58 have much larger quantities of grave goods but adult grave 59 also has nothing. In two cases the bodies had been laid upon matting. In contrast, two of the graves found by Hijara consist of pottery vessels containing skulls; in one case with a single skull, in the other with four skulls. As Hijara has pointed out, these must be secondary burials, but whether they need be of special status is conjectural. The unique vessel associated with one of them does strongly support this but I feel that we lack a firm enough cultural context to be certain (Hijara 1978, fig. 1). Undoubtedly, these unusual burials add additional credence to the idea that the other burials at the centre of the site may have been special. Additionally, it is worth noting

an unpublished skull which was found on the east of the site with no associated bones and apparently from an area with no Ubaid occupation (unpublished notes in the British Museum).

Yarim Tepe I

The Halaf burials found on Yarim Tepe I, cutting into the Hassuna layers, provide the only possible evidence for an Halaf cemetery to have been discovered. Equally, they may have been cut down from a now eroded Halaf occupation (Merpert and Munchaev 1973a, 108). Only four Halaf burials are referred to specifically but it seems safe to infer from the preliminary report that there were many more (Merpert and Munchaev 1969, 129; 1971, 17). There is little information on the burials but they included 'catacomb' graves, possibly a sort of shaft and chamber tomb. These were accompanied by quantities of grave goods. The bodies were orientated south, south-east or east. There is one extraordinary grave which contained human bones along with the skull of a huge bull and about 200 astragalus bones along with pots and ground stone objects (Merpert and Munchaev 1971, 17).

Yarim Tepe II

There are 27 burials published from Yarim Tepe II, more than half from the lowest two levels, VIII-IX, and very few from the top six levels. The precise context is published in few cases and they all appear to come from the area of settlement although it cannot be said if they are buried under or near houses in use or in areas where there were temporarily no structures. There seem to be three main types.

The majority are inhumations, mainly of children in the range of less than one year to seven years old, although there are some exceptions. There were almost as many adult burials as children in levels 8-9 (six adults and seven children with two without published ages). However, none of the later published burials were of skeletons of more than 10 years old. This suggests either a change in custom or that adult burials were confined to specific areas of the site which were only excavated in the early levels. Grave 61 in level VIII-IX had two adults as well as a child buried in it (Munchaev and Merpert 1981, 205, fig. 66). That is one of two graves where there was evidence of multiple burials in this group, the other having two children's burials (grave 58, Munchaev and Merpert 1981, 205).

It seems probable that burials in levels III to VI had grave goods more often than in earlier levels and that these goods were more numerous when present. In levels VII to IX, only three of the twelve graves, with fifteen bodies in them, had grave goods. In the later levels, four out of five burials had grave goods, two of them with a large quantity. Where there were objects with the body, they could be quite numerous. Grave 36 from level IV-VI had six pots, a necklace and a pendant (Munchaev and Merpert 1971, 31). In level VIII-IX, grave 58 contained the body of a child which was accompanied by 572 beads of various materials, a cup and part of a figurine (Merpert and Munchaev 1987, 25).

Most of the bodies are recorded as being flexed with no distinction between the left and right sides. Of the fifteen bodies with the orientation published, the exact directions are very widely spread but ten of them lie in the quadrant between east and south with the others evenly distributed in other directions (fig. 9.3).

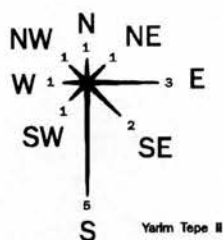


Fig. 9.3: The frequencies of orientations in Yarim Tepe II burials

The second group of burials is of cremated skeletons. Five of these were found in levels VIII to IX and one each in levels VI and VII, although whether this custom was confined to the lower levels of the site is impossible to tell without more publication of the upper levels. Generally, the cremations seem to have been carried out in an area distinct from the burial, in one case in a specially built oven (Merpert, Munchaev and Bader 1976, 51-52). Sometimes the burnt bones were placed in a pottery vessel. Of the seven examples, five are relatively to extremely well endowed with grave goods. It is probably evidence of age differentiation that the two exceptions were the only cremated infants in levels VIII-IX (Merpert, Munchaev and Bader 1978, 40-41) in which there were three adult cremations with rich grave goods. Where there are grave goods, the excavators believe the pottery to have been deliberately smashed.

It of great importance that, as well as these cremations, there are several deposits at Yarim Tepe II which share many of the characteristics but lack actual bodies. They combine deliberately broken pottery and other objects with burning and burial (Munchaev and Merpert 1981, 26). This can have a number of explanations but it does suggest that at least part of the ceremony did not need human remains, implying that these cremations may have been part of a wider ritual, in which a human body played an important but not vital role and which associated the deliberate destruction of fine objects with burning. It is probable from Mallowan's unpublished accounts that there were somewhat similar deposits of pottery and bones, probably animal bones, at Arpachiyah but the standard of recording at that site is too poor to be sure.

The third burial type at Yarim Tepe II is that of skulls which occur three times in level VIII-IX (Merpert, Munchaev and Bader 1978, 40-41). Two of the graves had a single skull, the other had three, all lying on the left sides and without grave goods. A dismembered burial with the skull on top of the other bones from the same levels possibly also belongs in this category (Merpert, Munchaev and Bader 1978, 40). This is an obvious parallel to Hijara's graves at Arpachiyah although, in the Yarim Tepe II examples, grave goods do not provide a reason for associating this rite with high status burials.

Yarim Tepe III

The four Halaf burials from this site add little information (Munchaev, Munchaev and Bader 1984a, 37; Merpert and Munchaev 1984b, 56-57 and 61). Three are of young children with no grave goods, the other of an twelve year old accompanied by four pots. All fall into the first group of burials from Yarim Tepe II, are flexed on the right or left side and orientated in several directions.

Chagar Bazar

Although there were nine burials in the Halaf levels of this site, so few details were published as to make them of little use. At least one of the graves had no body found in it. Where the body is mentioned, in three cases, it is invariably an infant and the grave goods usually consist of a single pot, which may or may not be painted. There is a single instance, not included amongst the burials in the report, of what appears to have been a cremation placed inside a pot, which may compare with some of the cremations of Yarim Tepe II (Mallowan 1936, fig. 3, no. 6).

Tepe Gawra

The Halaf burials at Tepe Gawra are unique both as mass burials and as being in a well. It is, however, not clear whether this implies that they resulted from unique circumstances or whether this is a type of burial which has simply not been found elsewhere, perhaps as a consequence of its peculiar context. Certainly if it is not a normal custom, it seems most likely to be a mass burial after plague or 'war' but it is quite conceivable that the well, or possible deep grave shaft, may have been open for a considerable length of time and used over a long period to dispose of bodies. Akkermans has suggested parallels with the broadly contemporary mass burial at Mersin (Garstang 1953) and emphasised the degree to which they deviate from normal Halaf burial ritual (Akkermans 1989b, 84-85). This is true but in the case of Tepe Gawra, at least, the burials were found on the edges of the main tell, an area not usually sampled in excavation and therefore, potentially, containing a range of activities and functions quite different from those seen in the centres of settlements.

Tell Azzo I

Although very little of the site is known, the burials are worthy of individual attention. Several skeletons without skulls were found which appear to be associated with a tholos (Killick and Roaf 1983, 206). The potential relations with the skull burials at Yarim Tepe and Arpachiyah are obvious but, in the absence of any details, no further discussion is really possible.

Çavi Tarlasi

Eighteen Halaf burials were found at this site (von Wickede and Misir 1985). All but two were of children with none or single grave goods. Two were double burials, with an adult

male buried together with an infant. In one of these cases the grave goods were relatively rich.

Discussion

A number of general traits have been mentioned which occur in many cases in all periods. Known graves are almost always within settlements, a product of where excavations have taken place rather than any underlying reality. Burial in a flexed position is prevalent. Rather than highlight these and other rather superficial characteristics, some specific burial types will be proposed.

Sawwan Type 1: The burials in level I of Tell es-Sawwan. There is no evidence as yet that these are typical of Proto-Hassuna sites further north, although they are probably contemporary. These are crouched inhumations notable for the very large quantities of stone grave goods and an absence of pottery ones. There is a distinct class of grave which lacks an actual burial.

Sawwan Type 2: Infants buried in shallow gypsum vessels. These appear in level III of Tell es-Sawwan.

Sawwan Type 3: Adult or infant inhumations. Grave goods are intermittent. These appear in level II of Tell es-Sawwan

Hassuna Type 1: Adult inhumation on the back. Grave goods are rare. These occur at Yarim Tepe I.

Hassuna Type 2: Dismembered adult bodies which are not buried and often appear in potential 'ritual' contexts. Grave goods are rare. These are present at both Yarim Tepe I and Tell Hassuna.

Hassuna Type 3: Flexed inhumation of infants, often covered with sherds. Grave goods are rare. They occur at Yarim Tepe I, Tell Sotto and Telul eth-Thalathat.

Hassuna Type 4: Infants dismembered in pots. No grave goods. These have been found at Yarim Tepe I and Tell Sotto.

Hassuna Type 5: Infants buried in pots. Grave goods intermittent. This group, found at Tell Hassuna, may be linked to the previous one.

Halaf Type 1: Adult or infant inhumation, flexed on side at times and, particularly at Arpachiyah, accompanied by multiple grave goods. This is the most common type of Halaf burial and is represented at many sites.

Halaf Type 2: Skulls buried, sometimes in groups, separate from bodies. This occurs at Yarim Tepe II and Arpachiyah. The converse, skeletons without skulls, is present at Tell Azzo.

Halaf Type 3: Mass burial. This only occurs at Tepe Gawra although Akkermans has associated mass cremations at Mersin with it (Akkermans 1989b, 84).

Halaf Type 4: Deliberately broken pots and other items in a burnt deposit which may include a cremated adult or infant body. This is definitely known from Yarim Tepe II and may also have occurred at Arpachiyah and Chagar Bazar.

While the above classification clearly over-simplifies and fails to include all the varieties of burial, it is broadly accurate in summarising the large majority of burials and simplifying their discussion.

It is clear that there is considerable variation both within and between sites of a single period in aspects of the burial. The Hassuna has internal variations. Hassuna Type 3 and 4 burials, those of infants, do not appear at Tell Hassuna itself where all infant burials are Type 5, a type not found elsewhere as yet. However, equally important, there is clear continuity in some of the most distinctive types within the long development of the Hassuna culture. The dismemberment of corpses appears at Tell Sotto in the Proto-Hassuna, and continues to Hassuna II at Yarim Tepe I and appears also at Tell Hassuna. The very specific Type 4 burial type occurs identically at Yarim Tepe I and Tell Sotto. In contrast, despite the ceramic links, the burial types at Tell es-Sawwan seem distinctly different to those further north.

There are also distinct variations within the Halaf. At the same time, some of the most distinct practices are clearly widespread. Halaf Type 1 graves at Arpachiyah often have multiple grave goods, especially the adults, while at Yarim Tepe II grave goods are rare and at Chagar Bazar small quantities of grave goods, probably mainly in infant burials, are the rule. On the other hand, Type 2 burials of skulls appear at both Yarim Tepe II and Arpachiyah, and Type 4 deposits may have parallels at Arpachiyah as well as Yarim Tepe II. Whether these apparent differences are real will only be seen when a much greater number of sites have been excavated.

Orientation

Although orientation need not be a significant factor and, even if it is important in a burial custom, may vary depending on such things as the age and sex of the body, some of the sites examined appeared to have consistent preferences for the orientation of the body. Tell es-Sawwan level I burials appeared to be orientated to avoid having the head in a westerly direction. At Yarim Tepe I an unexpectedly high proportion of the bodies have the heads in the quadrant from east to south. In the Halaf, at Yarim Tepe II, two thirds of the burials have the head in the same quadrant.

It seems significant that, wherever a substantial number of burials are known, there is a consistent avoidance of aligning the body with the head to the west. It is interesting that this is also the case in the Ubaid at Tell Abada (Jasim 1985) and Arpachiyah (Mallowan and Rose 1935). This may or may not reflect certain underlying beliefs; it certainly suggests continuity in a particular aspect of burial ritual despite major changes in material culture.

Evidence of social organisation

Traditionally burials have been used as one of the primary means of elucidating social stratification and a number of 'rules' have been suggested (e.g. Brown 1981, 27-30). However, with the exception of Tell es-Sawwan level I, the samples available for this period are much too small to detect variation statistically. We can isolate several types of burial but we know too little of the context of the burials and their function. It would, therefore, seem unlikely that we should expect to be able to interpret burial patterns as corresponding to specific modes of social organisation and it would be dangerous to attempt to force the evidence to fit preconceived ideas.

Akkermans has recently surveyed Halaf burial practices and, although his interpretations differ considerably in detail from those presented here, he also concludes that the evidence is insufficient to make definite social interpretations (Akkermans 1989b). However, the fact that several well defined burial types were in use contemporaneously, can be used to suggest a rich social organisation and belief system. The burial patterns show considerable complexity not just in the Halaf but throughout the period, certainly from Hassuna I. The different rites which were in use simultaneously probably correspond to different social positions or attitudes. As such, they point to a considerable degree of social complexity. However, to interpret this social complexity as hierarchical seems subjective.

It seems more reasonable to suggest that, while completely different types of burial may reflect a general social complexity in which several potential roles existed in life, wealth differentiation within a single burial type may reflect differential wealth and/or power in life. Specific examples of apparently rich graves include some of the cremations at Yarim Tepe II and, possibly, grave 25 at Tell es-Sawwan as well as less clearly differentiated examples of rich grave goods at other sites. Perhaps the most notable is the Halaf burial on Yarim Tepe I with a large bull skull and over 200 astragalus bones. It seems possible that burials of unusual richness are more marked in the Halaf than the Hassuna in north Iraq. However, whether this reflects an increasingly hierarchical social organisation or burial custom is, as yet, unclear.

Burials as parts of a wider ritual

At several points above it has been suggested that there were rituals in which the use or disposal of a body was a part, but not necessarily a major part. This was suggested as a possible explanation for the empty graves at Tell es-Sawwan Level I, the dismemberment of adult bodies and their deposition in structures rather than graves at Yarim Tepe I and Tell Hassuna, and the cremations of Yarim Tepe II. The skulls buried at Arpachiyah and Yarim Tepe II may be additional examples but there is less specific reason to include them. Although the forms that these examples take is too wide to allow a suggestion that they are evidence of direct continuity, they may stem from related ideological milieu in which bodies, not necessarily dead and certainly in some cases articulated, had a significance not simply

confined to a funerary context. The potential association of the dismemberment of adult bodies and ritual is particularly compelling at Tell Hassuna and Yarim Tepe I. It is certainly notable that, despite a greater amount of evidence, there is little indication of this type of practice in the Ubaid where the disposal of the dead appears a more unified, standardised procedure.

The evidence from Tell es-Sawwan I and Yarim Tepe II for parallels between burials and other deposits may, perhaps, point in another direction. Grave goods are deliberately placed with a burial by the living, who may have many motives for this disposal of these, often valuable, objects. In particular, a funeral may have provided an occasion for this consumption of wealth to have been public and ostentatious. In discussing European hoards, another deliberate consumption of wealth, Bradley has noted that "the distinction between grave goods and hoard finds need not have been as marked as it sometimes seems" (Bradley 1990, 94). The facts that the actual items at Tell es-Sawwan and Yarim Tepe II seem inherently valuable, are found in both the funerary and non-funerary deposits and seem unusual in other contexts all tend to support this link.

Bradley has used the ideas of Gregory (1982) to interpret the purpose of such deposits. He suggested that in a society in which gift exchange is used as a means of obtaining and maintaining status, it is difficult to avoid repeatedly incurring debt when a gift to a living person is immediately followed by a return gift of greater value. Prestige obtained through giving gifts in this way is always vulnerable to sudden loss. One way of resolving this dilemma may be to give gifts to gods instead. Often this involves the physical destruction of objects or their deposition where they cannot be recovered, often in public and impressive ceremonies. This also has the effect of removing the offerings from circulation permanently, making it more difficult for others to make up comparable prestige.

While we should not automatically adopt this interpretation, it appears to fit the evidence from Tell es-Sawwan and Yarim Tepe II very closely. The overt purpose of the deposits with and without burials may have been different, but some of their purpose in gaining prestige for certain of the mourners may well have been the same. There is little sign of the competitiveness this suggests in society, either in the Proto-Hassuna or the Halaf, elsewhere in the archaeological record but this is more likely to be a deficiency in other areas of the record. In both the Proto-Hassuna and the Halaf, the accumulation of prestige may have had an important role in society and we may suggest that there were both the means and potential to obtain and maintain power which are not visible elsewhere in the burials of the period.

Chapter 10

The Status of Arpachiyah

Introduction

Tell Arpachiyah is a relatively small site, not much more than 125 m in diameter and standing 5.5 m above the surrounding area. Despite its size it has, and is likely to continue to have, inordinate influence on our understanding of the late Halaf. Arpachiyah was first excavated by Mallowan for six weeks in the spring of 1933 (Mallowan and Rose 1935). He employed a huge team with minimal supervision; up to 174 workmen and at most two supervisors on site. It is indicative of the potential problems which were recognised even at that time that work was started on the outer part of the mound to “enable the men, at least half of whom had not been employed on excavations before, to obtain some initial training” (Mallowan and Rose 1935, 8). It is not surprising that almost no structures were found in these outer areas. Fortunately the centre of the mound was excavated last, with rather better trained workmen. Because of this and because of the unusual nature of the finds, it was better recorded as well. As far as a detailed analysis of the function of the site is concerned, it is really only this central area which can be used from the 1933 excavations. The site was re-excavated in 1976 by Hijara (Hijara 1980; Hijara *et al* 1980). These excavations consisted of a long slit trench running from the summit of the mound.

Since the earlier set of excavations, Tell Arpachiyah has been one of the key Halaf sites for the interpretation of the Halaf culture. In addition to being, for a long time, the only stratified sequence available (see chapter 4), it has an assemblage of objects from the Burnt House in the sixth level which was instantly recognised as outstanding. The pottery from here in particular has set standards of excellence in prehistoric pottery which are difficult to parallel anywhere else and, rightly, have a prominent place in the development of ceramic art.

However, despite this prominence, very little effort has been made to re-examine the role of the Burnt House and of the settlement of Arpachiyah as a whole. The major notable exception is the new evidence of Hijara which, perhaps unfortunately, was not fully set in the context of the previous excavations. There has never been an attempt to draw up a complete catalogue of the material in the Burnt House or to analyse this material as a single

assemblage. It is hoped that such an analysis will contribute, at least partially, to our understanding of late Halaf society.

The Burnt House

The sixth level from the top of the mound was designated TT6 (TT stands for 'Top of Tepe!'). TT6 contained a building, part of which had been destroyed by fire and which contained a large number of objects. This is generally referred to as the TT6 Burnt Room or TT6 Burnt House. Mallowan recorded over 150 objects of a wide range of types lying on the floor of two rooms; depending on how the objects are counted, it would be easy to arrive at a much larger total. Although I will discuss the contents of the room in more detail below, the majority of these objects were extremely and often uniquely fine, including the famous polychrome plates. Many of the objects were either incompletely published, or completely unpublished since, because of various political difficulties, Mallowan was unable to re-examine the objects which were assigned to Baghdad.

Previous Interpretations

The main interpretations are quite restricted. Mallowan offered various different ones in the initial report (Mallowan and Rose 1935), but most favoured was a combined potter's and stoneworker's workshop and it has been this which has generally been accepted. LeBlanc and Watson have interpreted it simply as a chief's house (Watson and LeBlanc 1973). Its destruction was ascribed by Mallowan to invading peoples of the Ubaid culture (Mallowan and Rose 1935, 106), an idea which has almost universally been rejected since and a cause of destruction has not been specifically proposed (presumably accidental?). Certainly, it seems unlikely that any invaders should have been Ubaid as the pottery does not represent the final Halaf phase, but the possibility of destruction in some sort of hostilities has never been convincingly disproved. Additional suggestions, not elaborated in detail, are of a storeroom for a community's wealth or the treasury of a local chief (Roaf 1990, 49). The most innovatory, and perhaps most interesting, theory has been advanced by Munchaev, the Soviet excavator of Yarim Tepe II, that it was a ritual cremation although Mallowan specifically rejected this (Mallowan 1977, 96; see also Oates 1978, 119).

There are a number of problems associated with these interpretations. The most basic is that they are not based on the nature of the building, the actual finds or the detailed context of deposition; rather they are based on Mallowan's interpretation of the evidence as presented and emphasised in the original report. Secondly, the implications of the interpretation of the burnt house have not been followed through and integrated with what we know of the Halaf culture.

It is such a re-examination which will be attempted here. However, it should be emphasised that the evidence is less than ideal. Other studies on more recently excavated material from contexts with large quantities of *in situ* material, with possible ritual association, have emphasised the value of complete and detailed recording of the objects

themselves, their context and relationship with each other and the nature of the surrounding context in which they were set (e.g. Peltenburg 1991). Very little is known of the exact distribution of the objects within the Burnt House. Detailed examination of the objects is hindered by damage, cleaning and restoration which may have occurred during fifty years in museum storage and, in any case, it has so far proved impossible to locate or examine many of the objects which are now scattered in many museums.

The catalogue of objects in TT6 (Appendix D)

The catalogue of objects presented in Appendix D has been compiled from several sources. The basic record is taken from Mallowan's original small finds records (now in the British Museum) and the list of the division of objects between Baghdad and Mallowan (kept in the Iraq Museum in Baghdad). Some additional facts are only given in the publication (Mallowan and Rose 1935). Where it has been possible to re-examine the artefacts themselves, any information recorded on the object (usually in pencil) has been taken as being more accurate than the small finds record since it was probably added in the field. In such cases, the complete description has been revised.

The original scheme of small finds numbering has been retained; an A followed by a number. Where multiple objects have been assigned a single small finds number by Mallowan, they have been renumbered as Mallowan's number followed by a different letter for each object to provide unique numbers; thus A913a to A913g. Where no small finds number was allotted by Mallowan to an artefact which comes from the TT6 Burnt House, new numbers have been assigned starting at A1001.

It is certain that many important clues were missed in the excavation. Much more information would be useful on the nature of the fire and the architecture of the building. There are no botanical or faunal remains which may have existed. It even seems certain that not all the artefacts which were originally in the Burnt House were located. Many small objects must have been missed without systematic retrieval methods and it seems likely that some of the material supposedly from TT5 (A1004 in particular but potentially any of the artefacts listed in the catalogue) may have originated in the upper fill of TT6 before its significance was realised. Conversely, where an artefact is recorded as simply coming from TT6, it cannot be certain that it comes from the Burnt House—it may come elsewhere in that level—although that remains the most likely location.

Nonetheless, a reliable set of facts can be isolated from which we may hope to draw plausible conclusions. There will be two types of conclusions. Some will be general statements about the social circumstances which would have permitted and encouraged the activities whose remains we see. Others will be hypotheses which might account for these remains but which cannot be proven.

The Position of the Burnt House

The Burnt House is in a very prominent position at the summit of what was then a low mound. There seem to have been paths made from close packed pebbles, some of which are almost certainly contemporary with TT6, leading to the centre of the site (Mallowan and Rose 1935, 21, pl. Ib).

The layout of the TT6 building is rambling with no immediately obvious plan. This may be complicated by the potentially suspect excavation technique which may have failed to distinguish between adjacent units. Parts of the building are on a fairly massive scale; the long room which contained many of the objects is approximately 10 m by 3 m and had 0.5 m thick walls. This scale of architecture is unparalleled at other excavated Halaf sites.

In the levels below the sixth there were a series of tholoi. Therefore, level 6, with its rectangular architecture, has traditionally been seen as a radical change in the architectural traditions of the site. In the eighth level, a single tholos of impressive dimensions with a massive stone foundation was found, with a 10 m external diameter. This was reconstructed in level 7 and part of a second tholos at this level was also found. Mallowan argued that, on the basis of their size and position, "it may therefore be taken for granted that they [the tholoi] were buildings of outstanding importance" (Mallowan and Rose 1935, 34). Furthermore, he suggested that the fact that the foundations were not disturbed by later activity and the presence of two rich graves and several female figurines in the vicinity all pointed to the sanctity of the buildings. Hijara subsequently followed this argument, adding also his suggestion of a central tholos precinct (see below), more unusual burials and the fact that the fill of the tholoi seemed to be of clean red clay rather than more usual cultural debris (Hijara 1978, 127-128). In contrast, Akkermans has argued against this interpretation, pointing out that the figurines and burials are not directly associated with the tholoi and that the tholos precinct enclosure and the clean fill were only seen in very restricted areas (Akkermans 1990, 300-302). In particular he argued, convincingly, that the stone foundations of the tholoi, probably carried from the river Khosr about 3 km west of the site, need not have involved a massive investment of labour, as suggested by Hijara.

There remains, however, a previously unremarked but possibly more convincing reason to suggest that these tholoi may have had some particular status. If one superimposes the plan of the level 6 buildings on that of level 7, it is clear that the long, northern room of level 6 is on exactly the same plan as the antechamber of the level 7 tholos (fig. 10.1). Level 6 is perhaps better thought of as a reconstruction of level 7 on a slightly different plan rather than as a radical change in architecture as has been generally accepted previously. Mallowan states that "the foundations of the potter's shop [the Burnt House] rested directly upon those of the older level of destroyed buildings in TT7" (Mallowan and Rose 1935, 17; *contra* Akkermans 1990, 302). Indeed, some unpublished photographs in the British Museum and the section in the original publication (Mallowan and Rose 1935, fig. 4) suggest that some of the walls of the TT6 building may have been below the tops of the TT7 tholos foundations

which suggests that the later building may simply have been an alteration of a standing building rather than a reconstruction.

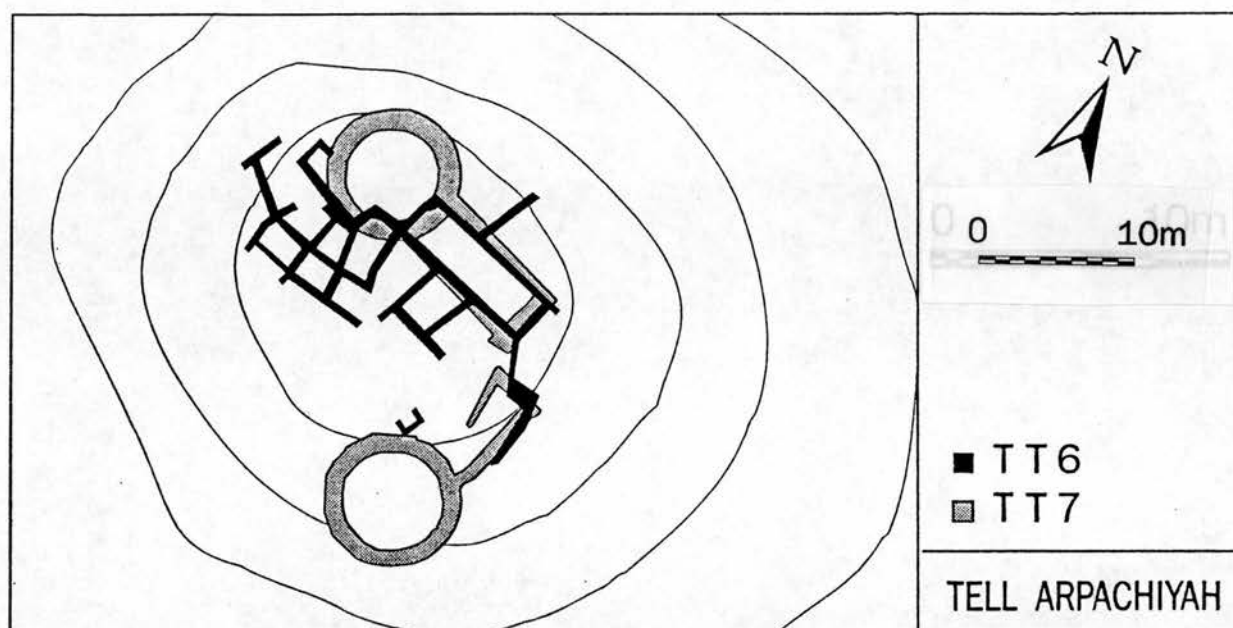


Fig. 10.1: Arpachiyah TT6 Burnt House in relation to the TT7 tholoi

There remains, however, a previously unremarked but possibly more convincing reason to suggest that these tholoi may have had some particular status. If one superimposes the plan of the level 6 buildings on that of level 7, it is clear that the long, northern room of level 6 is on exactly the same plan as the antechamber of the level 7 tholos (fig. 10.1). Level 6 is perhaps better thought of as a reconstruction of level 7 on a slightly different plan rather than as a radical change in architecture as has been generally accepted previously. Mallowan states that “the foundations of the potter’s shop [the Burnt House] rested directly upon those of the older level of destroyed buildings in TT7” (Mallowan and Rose 1935, 17; *contra* Akkermans 1990, 302). Indeed, some unpublished photographs in the British Museum and the section in the original publication (Mallowan and Rose 1935, fig. 4) suggest that some of the walls of the TT6 building may have been below the tops of the TT7 tholos foundations which suggests that the later building may simply have been an alteration of a standing building rather than a reconstruction.

This concept of reconstruction of a building on existing ground plans is familiar from later Mesopotamian archaeology, particularly for religious buildings. The early stages of the succession of Ubaid temples at Eridu have often been cited as the first instance of this but they cannot differ by a great deal in date from Arpachiyah TT6 (Safar, Mustafa and Lloyd 1981). It also suggests that, whatever interpretation of TT6 we are to accept, it must only have been the last in a series of important structures which may have shared the same

significance. It is possible that the contents of these buildings were comparable with those of the TT6 Burnt House but simply not preserved.

Hijara's Interpretation

Hijara has argued that the TT6 building, and the central area of the site in the preceding levels, was a distinct area within the settlement of Arpachiyah, marked off by a boundary wall and with little or no building activity in the outer area (Hijara 1978, 127; Hijara *et al* 1980, 134; Hijara 1980, 41).

Given the small size of Hijara's trench, projecting a boundary wall around the top of the tell seems very conjectural. If the section of Hijara's trench is studied (Hijara *et al* 1980, figs 3-5), the 'enclosure wall' is easily seen between the points marked 30 m and 35 m and is recorded as being a thick mass of tuff. While it is undeniable that it *could* be a wall, the trench in which it was found is only 2.5 m wide which is scarcely wide enough to argue that it is a wall rather than a mound of tuff for some other purpose. It is certainly too small an exposure to argue for an encircling enclosure wall; it may be part of such a wall, but there is far too little evidence to assume the existence of a wall.

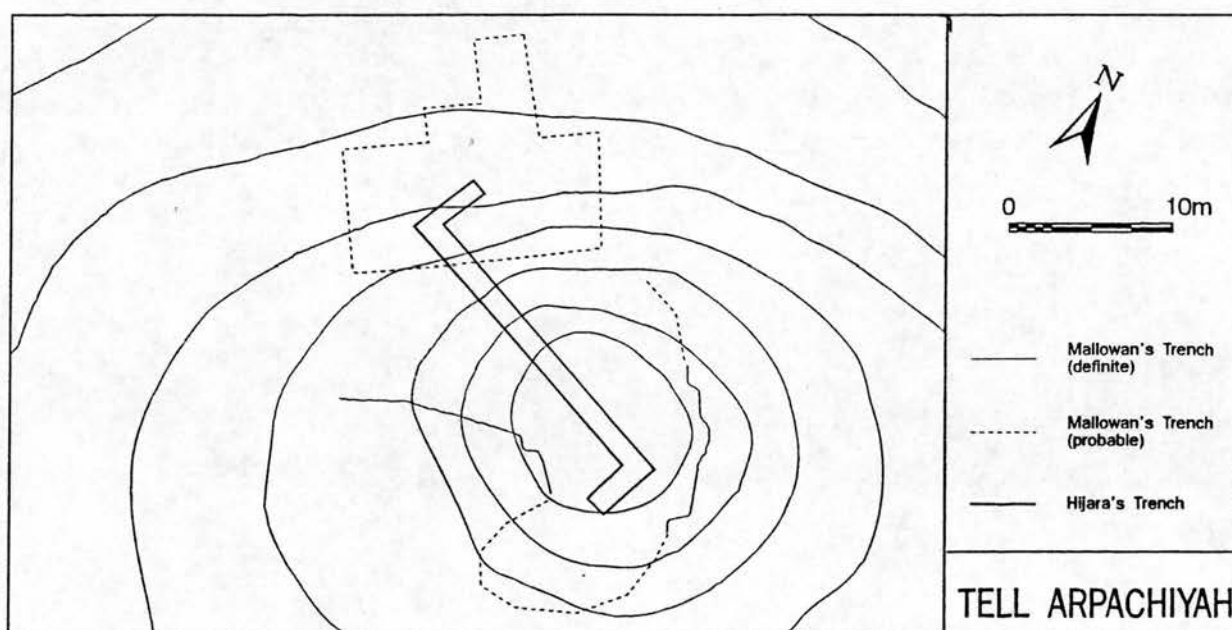


Fig. 10.2: Superimposition of Mallowan's and Hijara's trenches at Arpachiyah

Secondly, the reason why Hijara detected little or no later inhabitation in the outer part of the site is not necessarily because there was no such occupation, but because it had been already been removed in the 1933 excavations. The point at which there is a break in habitation is at about the 40 m mark on Hijara's published section (Hijara *et al* 1980, figs 4-5). It is clear from a combination of Hijara's overall plan, Mallowan and Rose's overall plan and several published and unpublished aerial photographs that this is almost

exactly the edge of one of the trenches of 1933 (fig. 10.2). Mallowan's unpublished notes in the British Museum make it clear that up to 4 m of deposit was removed in this area which probably accounts for all of the phases of occupation apparently missing on the outer part of the tell. Therefore, I suggest that we have to assume that the outer areas of the site were still occupied when the TT6 building was in use.

The distribution of the finds

The objects seem to have been concentrated in two rooms of the Burnt House, one referred to as the long room, the other as the full room. The former is certainly the large, long room on the north-eastern side of the building. The other is not exactly specified, but may be the adjacent room. Although the term 'full room' suggests that it contained most of the objects, this may be incorrect. Most of the objects for which there is any indication of location are specified as coming from the long room. It is notable that this room, which is one of the foci for the rich artefacts, maybe the primary one, is also the room which preserves the plan, and perhaps the significance, of the preceding buildings.

The finds were scattered around the rooms, some close to the walls, others not; some individually and some in groups. Some of the artefacts were found on charcoal which Mallowan plausibly interpreted to indicate that they had been placed on tables or shelves round the room. The only illustration shows objects which are lying in a group but do not appear to be close to a wall (Mallowan and Rose 1935, pl. 21b; unpublished photographs in the British Museum).

Not all of the building was equally burnt. Mallowan states that the southern portion suffered the most (Mallowan and Rose 1935, 106). This contrast is extremely marked in the condition of the artefacts. Some of these are heavily burnt but others are completely unmarked. This may indicate that the burning was only partial and the fire may have been halted by the collapse of the roof of the building, either accidentally or deliberately.

Nature of the objects

The finds can be discussed in rough groups. Much of the most important information is not included in the publication and some categories of finds are omitted entirely there.

Pottery plates

The best known type of find is the pottery. Thirteen pieces of this are the well known polychrome plates, manufactured and decorated with exceptional care and skill. Together with another polychrome example, recorded from TT5 but which probably originates in the Burnt House (A1004), and six fine monochrome plates these form a distinct group. Most of the polychrome plates are decorated in only two colours; four examples have additional white paint. There are also five plates or saucers decorated in only a single colour but sharing the same form, fineness of fabric and general decoration types with the polychrome examples; an additional example whose level is not recorded may also belong in this group (A1003). The

quality of this group is, so far as I know, unparalleled at any other Halaf site in terms of form, fabric and decoration (fig. 10.3 and fig. 10.4).

There is a considerable degree of homogeneity within this group of open plates. The forms are clearly related, although there are specific variations and a considerable range in the dimensions. A748 and A749 have more complex profiles. Some have much wider bases and steeper angles on the walls (e.g. A745 and A751). However, the similarity in dimensions of the largest plates is striking. A746, A753, A750, A749, A748, A752 and A528 form a very tight group in terms of diameter, especially if A515 is considered as being a slightly different shape and therefore set aside (fig. 10.5). If it does come from the Burnt House, A1004 would also fit in this group. In terms of the height of the vessels these pieces are also very similar, with the possible exception of A528 where the height has had to be estimated from a photograph and may be too low. An alternative, and looser, grouping might be those plates with a diameter of over about 240 mm. This would add A529, a trichrome plate, perhaps A751, a rather low bichrome plate and A754, a fine monochrome plate to the group. It should be emphasised that to produce plates of this diameter in such an open form with minimal signs of distortion and with a typical wall thickness of between 4 mm and 6 mm shows an exceptional technical capacity and an ability either to produce consistently good results in a series of bowls or to select only the perfect specimens from a larger group of vessels. It is also worth noting that the two vessels with the largest diameters occur on the vessels with complex profiles. This may suggest that complex profiles were used as a means of making the largest possible diameter. This might have been achieved by making the lower part of a vessel, drying it, and then, when it had gained strength, adding a new projection onto the walls. At other sites, similar complex profiles, on less fine pottery, have been shown to be made in two parts (Vandiver 1987, 27, pl. VII, 2).

The general scheme of decoration is identical in all cases. The interior is the main focus and very little of it is left without decoration; indeed in most cases very little of the original vessel surface is left unpainted at all. With the exception of A528 (fig. 10.3), there is a strong central focus which is usually some form of rosette but may be what Mallowan refers to as a Maltese Square (A751) or a group of bukrania (A515 which is a slightly different shape from the other examples). The walls of the interiors are covered with tight horizontal bands of densely painted and visually complementary motifs. This unity of composition and, especially, the quantity of paint used is unusual in other Halaf examples of plates where the decoration, although mainly on the interior, is somewhat sparser and more open. The exteriors of the plates are more plainly decorated, either with parallel bands or a bichrome design of triangles, as with A528 and A752.

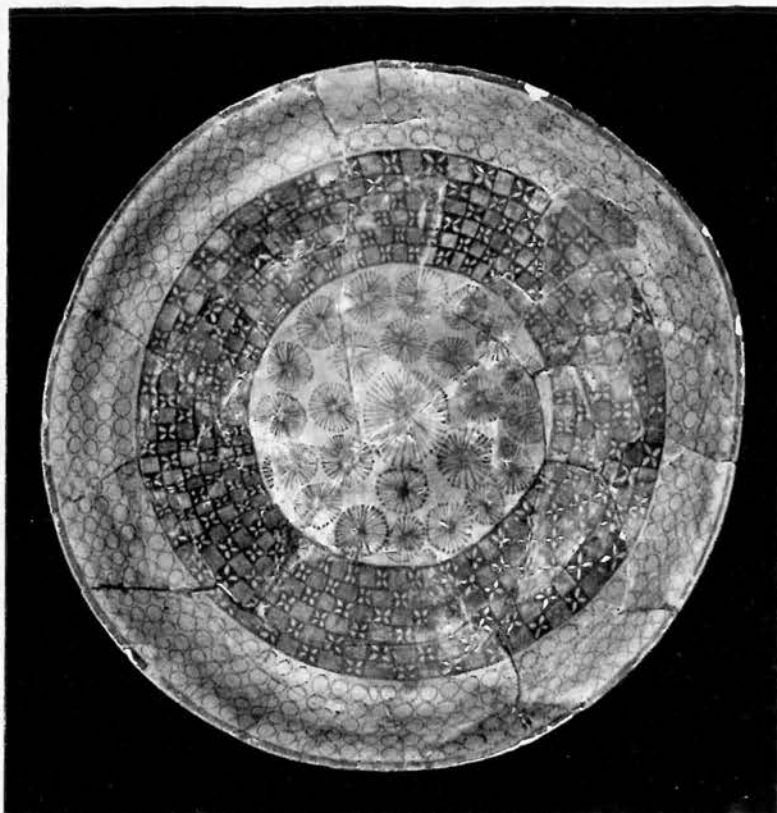


Fig. 10.3 *Arpachiyah polychrome plate from the Burnt House (A528)*



Fig. 10.4 *Arpachiyah polychrome plate from the Burnt House (A529)*

There are certain factors which recur in the decoration of the plates. Two of the plates are identical (A742 and A743). Stippled circles are frequent, occurring on three vessels as the uppermost band of interior decoration. In two cases this is on vessels decorated in three colours, associated with the use small rosettes in the next horizontal band and with a bichrome, triangular design on the exterior of the vessel. Negative designs, where it is the unpainted areas which form the main motif, occur in three cases (A750, A745 and A751) and in each case associated with the same external motif and, in the first two cases, with bands of crosshatching made up of horizontal and vertical lines. Rosettes are commonly used in this group, not just as a central motif, but also as a component in chequerboarding and bands. None of these motifs are unique within the Halaf ceramic tradition but their frequency here is unusually high (in the case of stippled circles, extremely high).

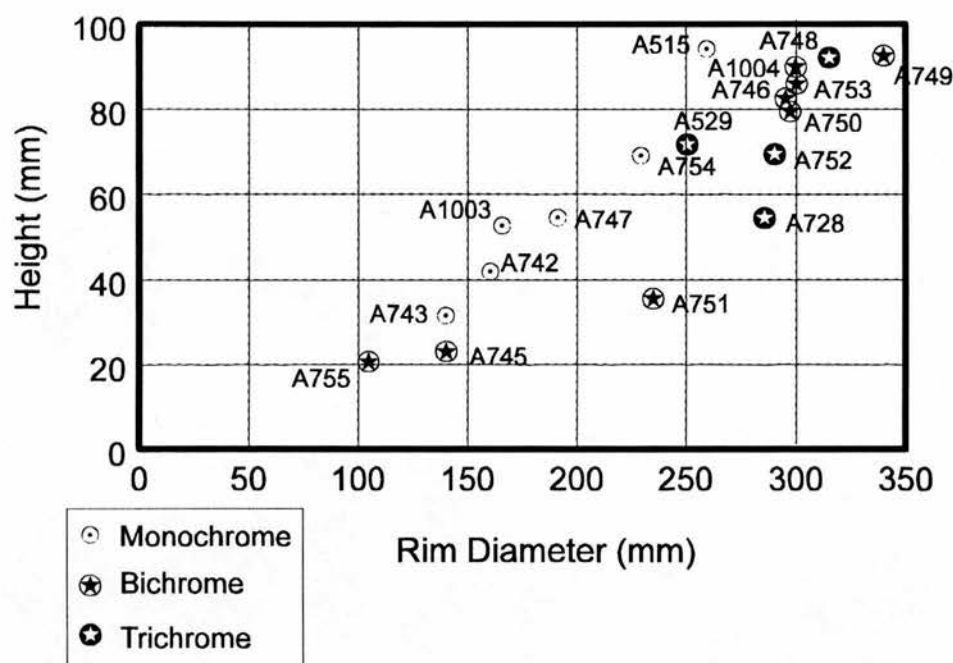


Fig. 10.5: Graph of the rim diameter and heights of the plates from the Burnt House

Therefore, this group of plates has a strong degree of internal similarity. The manufacture of the plates and their decoration shows an extremely high degree of technical skill and control. A relatively small group of motifs was employed in a consistent and inter-related manner. It can therefore be suggested, with some degree of confidence, that at least a sub-group of these plates may have been made by a single potter, or possibly a small group of potters, of great technical excellence. This sub-group would include A748, A753, A746, A750, A752, A528, A529, A1004 and, possibly, A749 which make up the closest morphologically and stylistically related group of the largest plates. It might also include A745, which is smaller but has very similar decoration. Others of the group of fine plates may also have originated in this group but they lack the very close similarities in shape and

form which occur within it. Although conjecture, it may be reasonable to suggest that this core sub-group of large plates had a single use and may have formed an eight to ten piece set in function as well as in style. The quality of the plates and their context suggest that this function was probably specifically high status.

Most of the plates are broken, some of them very extensively and one into 76 pieces (Mallowan and Rose 1935, 107). These plates must always have been fragile and, in the destruction of the building, would almost inevitably have been damaged. That this damage happened, *in situ*, as a result of the pressure from the surrounding deposits is shown by the only illustration of *in situ* finds (Mallowan and Rose 1935, pl. 21b) where three plates can be seen, clearly extensively broken but undisturbed. However, some plates have indications that they were broken and the pieces scattered prior to being burnt. This is particularly clear in the cases of A529, A750, A752, A753 and A754 where conjoining sherds have been burnt to radically different temperatures and in different atmospheres (fig. 10.4). This might have happened due to a drop from a table or shelf or even if, through differential heating, a plate shattered during the burning of the building. Mallowan, however, states that some of the sherds from a single vessel were found at opposite ends of the room (Mallowan and Rose 1935, 106). There seems no reason to doubt the accuracy of Mallowan's observations where they have been recorded and it is difficult not to conclude, as he did, that these pieces were broken and scattered deliberately. Such deliberate breakages must have been selective rather than comprehensive as not all artefacts or even all plates were affected.

One fragmentary plate (A1004) is almost certainly from the Burnt House but is recorded as being found in TT5. From its style and the fact that the burning is confined to single sherds it is probably one of the large plates which was deliberately destroyed. It was probably excavated before the rest of the Burnt House had been identified, either through inaccuracy of recording or because it was lying on the top of the TT6 deposit. It differs from other plates in that the edges of the individual sherds are very worn. This suggests two possible interpretations. It may have been kept as a collection of sherds with an inherent value as coming from the Burnt House and deposited in the later TT5 building. However, and perhaps more likely, is that, after the destruction of the Burnt House, this area of the site was abandoned. The sherds may have lain on the surface or eroded out, and the edges become worn through exposure. A gap in occupation after TT6 has been suggested previously although not from the same or from conclusive evidence (Davidson and McKerrell 1980, 164; Curtis 1981, 33).

Other Pottery

In addition to these fine plates, there was a considerable quantity of other pottery. Some of this was also extremely fine. The two bichrome jars (A512 and A739) are particularly notable. The type of decoration on A512 is very unusual. The combination of incised bands over all the surface of the pot with bichrome decoration may have been to give an intentional

appearance of basketry. The only close parallels come from sherds of a very large jar from an unrecorded Arpahicyah context in the Institute of Archaeology, London.

There were two fragmentary champagne vases, possibly A526 and A527 (Mallowan and Rose 1935, 136). The former is recorded in the small finds list as being decorated with stippled circles. There may have been a fragmentary bow-rim jar, part of which is in the Institute of Archaeology, London. It has very fine fabric, is very thin walled and decorated on the exterior with stippled circles; it has also been burnt. The stippled circles are reminiscent of the decoration on several of the polychrome plates.

In addition to this fine pottery, there were also a considerable number of vessels which, although by no means crude, are more typical of an Halaf ceramic assemblage. These include a considerable number of small pots and bowls.

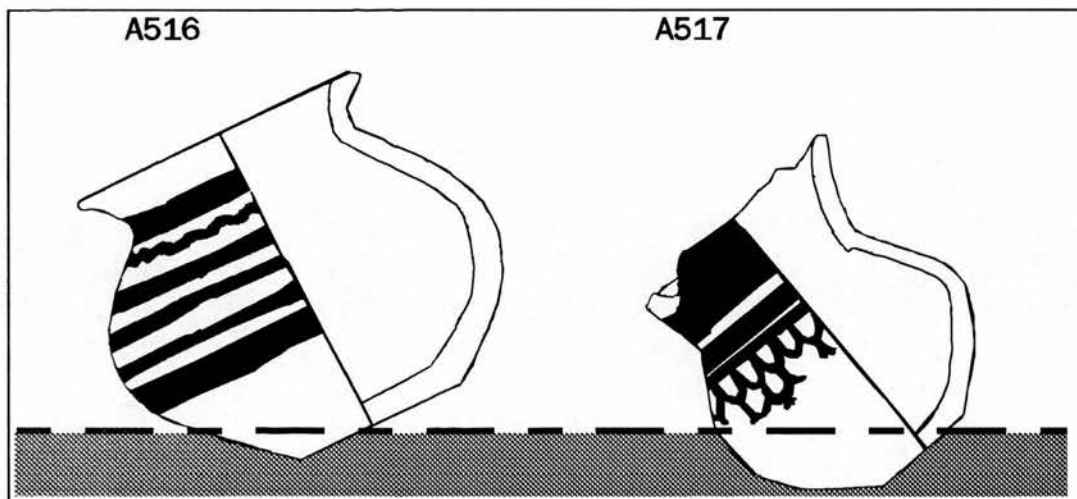


Fig. 10.6: Pots sitting at angle on the floor of the Burnt House (AA516 and A517)

Two very similar jars are noteworthy. These are the only two jars of their kind in the Burnt House. Both are heavily burnt and, from the differential burning visible on the exteriors, both must have been sitting at angles on the floor of the house prior to burning (fig. 10.6). In both cases, the areas lacking burning indicate that they were sitting at a normally unstable angle and must either have been propped against other objects or, more probably from the complete absence of burning in these zones, have been sitting partially sunk in some substance. This may indicate several things. They may simply have fallen into material lying on the floor. They may have been deliberately placed at an angle either in normal use or in specific circumstances (although both have flat bases). They may also suggest that the burnt house was in some disarray prior to the fire taking place. One of the pots retains carbonised remnants (as yet unidentified) of its original contents.

Both these jars and several of the other, non-fine ware vessels have clear signs of wear, particularly chips around the rims. These broken areas are themselves worn and are clearly not fresh breaks which happened during the destruction of the TT6 building or during its

excavation. Instead, they appear to represent the results of wear and tear in the normal life of a vessel. Thus, it would be wrong to think that the Burnt House contained only very fine and well preserved pottery. These plainer, more heavily used, pots may, in fact, represent the typical component of a normal Halaf dwelling.

A contrast can be drawn between the often extensive ware on these plainer vessels and the fine plates. A few of the smaller and less fine plates have traces of ware, especially scrapping in the centre of the vessel, presumably where food was scooped up. The finest and largest of the plates appear to have minimal or no wear visible in this area. Again, this emphasises that the largest and finest plates were reserved either for display or for a very specific function.

Stone vessels

Nine stone vessels were present. Stone vessels generally occur consistently but in small numbers in Halaf sites. This rarity may be due to their being stronger than pottery vessels and, therefore, discarded less often. It may also reflect their greater value. In any case, nowhere else has such a large number been found together. Of particular note is the obsidian jar (A411). In common with much of the obsidian work, this is of a technique and quality which has not been found anywhere else in an Halaf context. Chronologically and geographically, the closest parallel for any obsidian vessel of this size is considerably later from Tepe Gawra (Tobler 1950, pl. 103, 7) but even in much more technologically advanced contexts such obsidian vessels are usually interpreted as prestige items. The manufacture of such a vessel involves extensive drilling and polishing of obsidian in a manner totally different from normal lithic technology. Although Mallowan states that it may have been unfinished or broken in manufacture there is no specific indication of this; certainly the two fragments in which it is now were found lying together, suggesting that they were simply broken in the destruction of the building (Mallowan and Rose 1935, pl. 22b).

Jewellery

Large quantities of items which could loosely be considered jewellery were found. These included large numbers of simple beads (A877, A878, A879 and A880). Very few of these have been traced in museums. Therefore the identifications suggested by Mallowan that they contain examples in exotic materials (steatite, carnelian and serpentine are all mentioned) must remain conjectural.

However, there were certainly also some more exotic items. Amongst them was a necklace of cowrie shells and obsidian links apparently lying in the order that they have been restrung. Mallowan notes that the shells were originally filled in with red ochre. However, the deposits which remain in the shells give no indication of this but seem to be a mixture of ash and tuff which may reflect the deposits which surrounded them. The obsidian links in the necklace are technologically paralleled by the considerable number of other obsidian links were found in a group (A905 and A906). Once again, these indicate a technology of obsidian

polishing and grinding which is very different from standard Halaf lithic manufacture. The size of the blades from which these links were made (at least 60 mm long and 30 mm wide) are themselves very unusual in the neolithic of north Mesopotamia. The value of such links is emphasised by their absence from any other contexts at Arpachiyah and the scarcity of parallels within the Halaf. Specific parallels occur at Tepe Gawra (Tobler 1950), Banahilk (Watson 1983, 573, fig. 10.4) and Yarim Tepe II (Merpert, Munchaev and Bader 1984, 38, fig. 5, 4) but there are no multiple finds from a single context.

The cowrie shells in the necklace are clearly imported, from the Gulf, the Red sea or the Mediterranean. Black steatite, also an import, is used for at least some of the beads. In particular, these are the beads in the forms of ducks (A870, A871 and A873) and double axes or butterflies (A861, A862, A863, A864 and A865).

Seals

A considerable number of seals were found, probably ten but perhaps more. These are typical Halaf stamps seals with linear incised designs, but it should be noted that this is much the largest concentration found in any Halaf site (von Wickede 1990). All of the seals which I have been able to study have signs of long use, usually visible as a very high polish on raised areas. Two are of particular interest.

One is broken (A867). However, the break is heavily worn; the seal has certainly continued in use for a considerable period after being damaged. This suggests that these seals were of considerable inherent importance. The fact that they are all provided with holes for suspension and have wear marks consistent with rubbing for a long period suggests that they may have been worn about a person and, probably, been associated with that person or with an institution that that person represented.

The second seal of interest has been deliberately defaced (A874). 1-2 mm of stone has been ground away from its face, leaving only faint traces of the original incised patterns round the edge. The small size of the seal seems to rule out secondary use. It has been deliberately taken out of use. Once again, this seems to emphasise the significance given to such seals. It was not enough for it simply to fall out of use. It also had to be destroyed. However, this is the only example of this and it would appear that more typical seals did not need this treatment.

It is notable that seals are a frequent small find in TT7 and TT5. Six are recorded from TT7 or TT6-7 and two more are recorded as coming from TT5. These seals may have come from the Burnt House but been misassigned or they may have been deposited in the TT7 and TT5 buildings for the same purposes that the large numbers were deposited in TT6.

Sealings and nature of use

One of the most interesting types of object were sealings, 26 of which were found. The stamp seals themselves are well known but Halaf sealings are much less so, possibly due to accidents of survival and excavation (von Wickede 1990). They have been found at only a

very few sites (Arpachiyah and Tepe Gawra [Tobler 1950] and, in a very late Halaf context, Khirbet Derak [Breniquet 1990, pls 56-60]) unlike the seals which are rather more widespread. In general the Ubaid in the north of Iraq has received most attention as being the origin of true sealings (e.g. Buchanan 1967a and b; Caldwell 1976). The largest concentration at Arpachiyah certainly comes from the Burnt House. However, there are examples from elsewhere on the site and, although some of them are probably Ubaid or later in date, it seems likely that some come from Halaf deposits and some may also have originated in the Burnt House.

In the Burnt House, they seem to have been used in at least two ways. The first type are oval sealings wrapped around strings (the 19 sealings in group A619). This type seems to have been used in a standardised manner with seal impressions evenly distributed, often in pairs, around the circumference of the sealing. The sealings of this second type are characteristically flat discs with the seal impression made into the upper surface (the eight sealings in group A620). The reverse usually has no marks to indicate what it was pressed onto. Von Wickede suggests pot lids, although as he points out, Halaf jars with sufficiently narrow necks are extremely rare, or control markers (von Wickede 1990, 97), similar to a function as tokens suggested by Chavát (Chavát *nd*). Fourteen of the 26 sealings were impressed with the same hand-shaped seal (von Wickede 1990, 95). These include examples of both the first type of sealing (e.g. A619a, A619b and A619c) and the second (e.g. A620d and A620e). The impression of this seal is never found in combination with the impression of other seals.

These sealings suggest that seals were being used in a standardized and recognised manner to identify objects or goods. This suggests well developed concepts of ownership and the beginnings of bureaucratic procedures to mark and control it. It is significant that this practise seems to have become more widespread in the subsequent northern Ubaid and that it later forms a characteristic component of the Mesopotamian administrative assemblage. Chavát's study of the early sealings from Susa is of relevance here. He argues that "the conditions under which a practice of sealing may be introduced exist only if the commodities sealed are transferred into different competence spheres" (Chavát 1988, 57). This would suggest that a rather complex system was in operation with material being passed to the Burnt House at Arpachiyah from other people or locations which in turn possessed some degree of institutional competence. The relationship may also have functioned in reverse. The status of the owner(s) of the hand-shaped seal, which was the source of the most common impressions, is particularly intriguing but difficult to ascertain.

Unfortunately we know too little from sites other than Arpachiyah to completely understand the procedures or the potential hierarchical relationship which must have existed between the dispatching and receiving entities. We do not know whether the only function of seals was to operate in this way. Their frequency (*c.* 130 known from excavation [von Wickede 1990, 93]) and widespread nature, for example occurring at Çavi Tarlasi and Ras

Shamra as well as at sites further east, suggests that if they only served to impress sealings as a mark of ownership or destination, the system in which they operated was remarkably extensive. If this were so, one might argue that the absence of the sealings at most sites is surprising. However, it is possible that this could result if all the sealings were being dispatched to the central institutions, such as the Burnt House. One might even argue that the number of sealings in the Burnt House suggests that it was a repository for seals which, for whatever reason, were being taken out of general circulation.

There is no indication that the sealings were associated with other objects which they might have sealed. Indeed, the number of seals of the first type, impressed around cords, is much greater than the number of vessels, specifically jars, which might plausibly have been sealed. This suggests that the sealings were discarded after use, or even kept as some sort of accounting system or, much more likely, that perishable goods were also kept in the Burnt House but did not survive.

There are no sealings which match the patterns on any of the seals found in the Burnt House. This may suggest that the goods in the building may have come from outside the site and have represented consignments from a specific individual or place which were either given to the 'owners' of the Burnt House or, possibly, just stored there. However, given the lack of suitable recovery procedures in the original excavations, it is quite possible that additional seals were present which were not found, either in the Burnt House or elsewhere on the sites. These suggestions must, therefore, be tentative.

Stone axes

Amongst the finds from the Burnt House are six stone axes, the largest concentration at a single find spot in the Halaf. The four which have been studied are all true axes with symmetrical profiles of the cutting edge. Two of these are heavily used with chipped and resharpened edges. Two more, which have not been traced, seem from Mallowan's small finds record to have been equally heavily worn. One axe is only very lightly worn but is otherwise un-noteworthy. The final example is more unusual (A666). It is small and very well made from an unusual green stone. There is minimal sign of wear on the cutting edge and it is likely that the stone of which it was made is not hard enough to be suited to extensive use. It, therefore, seems probable that this had some prestige or ceremonial significance rather than being strictly functional.

Miscellaneous Objects

There were a number of objects classed by Mallowan as 'ritual'. These include a variety of objects with no obvious utilitarian function which will be considered under this heading. There was a group of objects found together at the one end of the Long Room (Mallowan and Rose 1935, 99 and Pl. Xa). These included both the figurines from the Burnt House (A921 and A941), the collection of real and stone knuckle bones (A992) and a small 'steatite' trough (A923). This group is suggestive of ritual or cult but, ultimately, enigmatic. It may be

significant that one figurine of each sex was present, despite the fact that distinctively male figurines are very rare in the Halaf.

A group of three (in the small finds catalogue) or four (in the publication) objects, at least one of which may be a very stylised anthropomorph, was also found (A904). The one which is not in Baghdad is definitely of pumice and two of the others may be. Their context and function are unclear.

A second type of object which can usefully be considered here, are the four bone tubes (A915). Two of these were found together at the west end of the Long Room, lying on charred wood (Mallowan's notes in the British Museum, 243). The location of the other two is unknown. Only one is preserved to its full length and it is possible but unlikely that two of the others may be opposite ends of the same object. All of these objects have some characteristics in common. All are highly polished. This may well be through handling and, together with the heavily worn ends, may suggest a long period of use. Each has a small area of wear close to the end, where the outer surface of the bone is completely worn through. This is presumably a characteristic of the way in which they were used but no explanation is obvious. Similarly, groups of notches occur on one side of the two longer pieces, around the mid-point on the complete piece, although it is possible that these are a natural characteristic of the bone caused by stress (pers. comm. Nicola Murray). The stone mouth piece, included in this group by Mallowan, may have been similar in use, but it has not been traced.

The palette (A901) is broken, probably in antiquity. Although this object is far from unique, parallels occurring at Kharabeh Shattani (Campbell forthcoming c) and Yarim Tepe (Merpert and Munchaev 1984, fig. 13, 1), it is very finely made. More particularly it is made from an extremely fine and colourful piece of banded limestone. Mallowan recorded it as being associated with a lump of red ochre which he interprets as being evidence that pottery was painted in the building. This appears to be highly conjectural. There is little definitive evidence to associate such a palette with pottery painting (see Tobler 1950 for the only specific associations) nor is there any other evidence of pottery manufacture present in the Burnt House.

A conical lump of lead, 42 mm high, was also recorded. However, it was not possible to examine this in Baghdad. There are no other records of lead in an Halaf context although there is a lead bracelet from level 12 at Yarim Tepe I. It must be taken as an unusual, and thereby potentially valuable, object as well as providing rare evidence of Halaf metallurgy.

Chipped Stone

Mallowan records thousands of pieces of flint and obsidian in the Burnt House (Mallowan and Rose 1935, 103). It is very unfortunate that this component, numerically the most significant find of all from the Burnt House, is virtually unrecorded and that little of it can be traced in museums. Small finds A907, A908, A910 and A911 can only represent a minute proportion of the total. Three additional objects, unusual tabular 'choppers' exist in the

Institute of Archaeology in London and are marked as being from the Burnt House (A1001). Along with them are quantities of flakes of an identical flint, at least one of which can be joined to one of the 'choppers'. These objects, at least, have, therefore, been made in the building.

The large quantity of obsidian along with the flint in this context is intriguing. The presence of obsidian cores indicates that much of the process of manufacture may have taken place here. There is a general absence or extreme rarity of obsidian cores at most other Halaf sites. This has usually been explained as either the result of the importation of obsidian in the form of blades or the knapping being done in unexcavated areas of the sites. The presence of cores and the evidence, if Mallowan is to be believed, of their working in the Burnt House at Arpachiyah are significant. Even more significant is the association of this manufacture with high prestige objects.

The importance of obsidian as an indicator of the scale of long distance trade in the Halaf is discussed in chapter 8. Of particular relevance here is the suggestion advanced in that chapter that Arpachiyah, for at least part of its life, was acting as a primary redistribution point for obsidian from the Lake Van area. In the Burnt House obsidian is the only material which does not fall into the categories of luxury, prestige goods or normal domestic equipment. It is the only material for which there is some indication of manufacture on the spot. The large numbers in which it seems to have been present is totally out of proportion with our expectations for this size of exposure. It, therefore, seems reasonable to advance the hypothesis that it was control over obsidian procurement and distribution (and possibly other items of trade which do not leave evidence in the archaeological record) which under-pinned the wealth and power of the Arpachiyah Burnt House.

'Domestic' objects

Along with these more exceptional objects there were a number of items, ignored in the publication, which are somewhat more domestic in nature—including spindle whorls and pierced sherds (A913). It is probable that some of the objects considered in the groups above, such as some of the plainer pottery and all but one of the stone axes, ought to be considered here also. These are objects which might, perhaps, be found in any Halaf building where material has been preserved *in situ*. Although they are of good quality, they are not exceptional and several of them show signs of long use. It is unfortunately impossible to know whether most of these objects came from the Long Room and Full Room, along with the high prestige objects, or from the other parts of the building. Therefore, we do not know if they represent a domestic context which co-existed in the same building as the more exceptional elements or whether they were used alongside them. They do suggest, however, that the two appear to have functioned within the same building complex. If the richer deposits in the Burnt House have any cultic or ritual associations, they had not yet been separated from a more domestic context.

Discussion

One can summarise many of the objects as being, as individual items, amongst the very finest workmanship from any Halaf site and in some cases as being completely unparalleled. As a group, this concentration of presumably high value and high status objects is as outstanding within our knowledge of the Halaf culture as, for example, the Ur royal cemetery is in the third millennium in southern Iraq.

This demands some explanation and discussion of its significance. Unfortunately, because of the standard of recording, it should be recognised as unlikely that any conclusion can be accepted as definitive. However, some interpretations are more likely than others.

Firstly I would suggest that the occupation of the house must be considered separately from the destruction. The burnt rooms with the objects are only part of a larger complex at the centre of the site, which had succeeded previous, related complexes which were unburnt. That it was built solely to be destroyed seems unlikely. This may not necessarily be true for the objects; some or all might have been brought to the building at the end of its life. There is, and can be, little direct evidence for the objects actually being used in the house.

If it was a workshop, as has commonly been suggested, one would expect more evidence of manufacture, perhaps wasters or misfirings for pottery, waste from the manufacture of the ground stone vessels and so on. In particular, one might expect part-made objects to be present and less of a preponderance of completed, very high quality objects. A greater prominence of raw materials would also be expected—cleaned clay and so on. Only for flint and obsidian is there compelling evidence for manufacture within the building. The only other potential raw material seems to have been a lump of red ochre which may have been used for paint. Unless it is to be interpreted as the wealth of a controller of obsidian trade, I think that, at best, there is a possibility of arguing that what there is in the Burnt House is a collection of the finest objects together with some of the items necessary to produce them. It certainly does not seem to be a simple workshop.

It seems unlikely that a specific theory as to the occupant or purpose of the Burnt House can be substantiated. However, some facts are clear. There was a collection, for ritual or secular purposes, of the finest objects of their kind found at any Halaf site. This implies a great degree of control over the products of the best craftsmen by an individual or institution. It seems unlikely that the finest potter or potters and the finest stoneworkers, in various mediums, would all be local to the relatively small site of Arpachiyah. Therefore, it is likely that either the products of fine craftsmen were gathered from a number of settlements or that the craftsmen themselves were persuaded to relocate at Arpachiyah because of economic or cultural/social reasons. Both cases suggest that Arpachiyah exercised influence over the highest quality, highest status material on a regional basis, although the size of the region is conjectural.

Alongside these observations, there is the other evidence from the Burnt House where the sealings imply standardized and organised methods of marking property and controlling

ownership. This must imply considerable integration and control of society, probably over a wide geographical area. It also indicates the existence of spheres of competence other than that of the Burnt House, amongst which sealings helped to regulate the movement of goods. This implies subsidiary settlements from which sealed goods were transferred to the Burnt House (an essentially unilinear transfer of goods), and/or centres equivalent to Arpachiyah which exchanged goods (a bidirectional transfer of goods). If the previous large tholoi in TT7 and TT8 shared some of the function as well as the plan of the Burnt House, these relationships would have persisted over at least three building phases in the same architectural form. This suggests an institutionalised control associated with either a series of individuals or a central institution which could sustain itself over a long period of time, at least in part, through some forms of bureaucratic administration.

The Destruction of the Building

The burning of the Burnt House could be accounted for by accident, by hostile invaders or by an attack by a rival central site and it is difficult to discount these possibilities entirely. However, there are some indications of more deliberate destruction. Some of the finest plates appear to have been deliberately smashed and scattered to the extent that pieces were found at opposite ends of the Long Room prior to the burning. This is, perhaps, not the natural behaviour of an invader as Mallowan suggested (Mallowan and Rose 1935, 106); looting might take priority.

If the quantity and exceptional fineness of undamaged objects left in the building is an indication, there is no evidence of extensive looting or attempted recovery of the objects. As considerable portions of the building were not extensively burnt, it seems unlikely that collapse of the roof in the unburnt areas was total or immediate. Attempts could have been made to regain at least the less fragile objects, such as the stone bowls, the obsidian links and the seals. It is, of course, not impossible that such an effort was made and what we are left with is what escaped such a salvage operation. It seems more likely, however, that no such salvage took place.

Therefore, the situation may be of a building in which there were large numbers of very valuable objects, some of which were deliberately destroyed before it was burnt, on purpose or by accident, and which there was no attempt to recover following that fire. It is difficult to avoid at least a tentative conclusion that the building, and the objects in it, were destroyed deliberately as part of a secular and/or cultic ritual. That the subsequent building on the site, TT5, seems much smaller in scale and seems to have had a different building plan may suggest that any such ritual may, amongst other things, have marked the end of the role of this particular building and the individual or institution it may have housed.

When comperanda are sought elsewhere in the Halaf culture, there are significant parallels on a much smaller scale in the Halaf levels of Yarim Tepe II. There are three characteristics of the destruction of the TT6 Burnt House which are significant here.

- 1 It is a collection of specifically the finest objects.
- 2 Some objects may well have been deliberately smashed.
- 3 Burning was involved.

There are close similarities between these factors and the characteristics of other deposits known at Yarim Tepe II, where extremely fine objects (although not in large concentrations as at the Burnt House) were smashed, deliberately according to the excavators, and associated with burning (see chapter 9). These deposits are often associated with human remains but by no means always—the presence of human remains seems optional rather than central to the ritual—so this is no barrier to this interpretation. Thus, an interpretation of the end of the Burnt House as a ritual destruction on a grand scale, somewhat similar to that suggested by Munchaev, would fit very closely to what we know of Halaf ritual practice and accord with the evidence.

Chapter 11

Discussion: Time, Space and Society in the Late Neolithic

The aim of this final chapter is firstly to summarise the main conclusions of this study. More significantly, it is intended to pull together the various strands of evidence and argument which have been presented in the previous chapters. In a limited way, it is an attempt to look at how the organisation of society developed through time and how the social relationships within northern Mesopotamia may have altered in time and space. As has been stated before, it is concerned first and foremost with north Iraq and, in many ways regrettably, it is necessary to structure much of the discussion around the ceramic evidence.

Chapters 3 to 5 outlined a new chronological scheme dividing the late Neolithic in north Mesopotamia, and especially north Iraq, into ceramic phases together with an estimation of their likely absolute dates. This scheme divides the Hassuna into Proto-Hassuna and Hassuna phases I-III, and the Halaf into Halaf I and II, each with a proposed a and b sub-phase (see table B.85 in appendix B). The phasing accords better than previous divisions with the available, rather sparse evidence and, to as large an extent as possible, each has been defined to give the maximum discrimination between phases. Equally, regional variations have been recognised where detected and, as the main divisions are based on rather general criteria, only gross regional variation is likely to distort the picture. More minor changes can be accommodated within the proposed scheme without great difficulty.

Although this scheme is a considerable revision of the traditional chronology, it remains structured along the Hassuna-Halaf divide. In the past this has been highlighted as one of the most significant breaks in the sequence, a natural division around which a chronology can be structured (Watkins and Campbell 1987; Munchaev and Merpert 1981, 282; Akkermans 1991, 124). It is, I think, clear from the chronological discussion that this fundamental division is false. In north Iraq, at least, there is no perceptible break. The Hassuna III ceramic assemblage, seen at Khirbet Garsour, is as closely linked with the Halaf Ia assemblage at NJP 72 as it is to earlier Hassuna material in north Iraq, such as at Yarim Tepe I or Tell Hassuna. The broad division into Hassuna and Halaf must be considered purely as a division of convenience and has been retained here to make the new scheme more similar to the old

one. One must suspect that the individual ceramic phases isolated in chapters 3 to 4 have similarly fuzzy edges and that the proposed divisions only appear discrete because we lack assemblages from contexts which would demonstrate this continuity.

Thus, we have moved from the situation of twenty years ago when there were apparently rather abrupt transitions between the Hassuna and Halaf, and the Halaf and Ubaid. The Halaf-Ubaid transition has been shown to be much smoother (Davidson 1977; Breniquet 1990) and now we can see that a sharp break between the Hassuna and the Halaf is also unjustified. It remains possible that abrupt ceramic changes did occur, but our current chronological resolution is unlikely to detect them, and the signs of continuity seem far stronger. In any case, any significant and rapid periods of change, which we cannot detect in the archaeological record, are as likely to fall within the Hassuna or Halaf phases as between them.

We have to have a chronological sequence to examine the late Neolithic but it appears that any one will be, in many areas, an arbitrary one and this should be remembered in the subsequent discussion. It is only on the edges of north Iraq and north-east Syria that we can clearly see a natural division at Tell Sabi Abyad where Hassuna III/Samaritan type pottery seems to be a genuinely innovative element in the local assemblage rather than an internal development.

Spatial Trends

In an attempt to summarise changes in the distribution of pottery traditions, we have to deal with rather gross patterns of change and remember the scattered nature of the evidence. The Proto-Hassuna ceramic assemblage is characteristic of north Iraq in the first part of the sixth millennium. This phase seems to have marked the start of extensive settlement in large parts of the plains of north-west Iraq. However, from the evidence of the North Jezira Project survey, the settlement density was still rather low and it was suggested in chapter 7 that considerable areas of the plain may have remained without significant settlement until Hassuna II. This pattern may well have been replicated in north-east Iraq, north-east Syria and, possibly, in the Tigris and Euphrates valleys. Even within their main area, Proto-Hassuna sites exhibit considerable variations in their pottery. Although there are broad similarities in ceramics between the Proto-Hassuna in the north of Iraq and sites further south, such as Bouqras and Tell es-Sawwan I, there are also considerable differences. Burial customs and architecture, too, have significant variations over north Mesopotamia. The latter is particularly informative as it seems to indicate that different social structures may have existed. At Tell es-Sawwan I very large houses seem to suggest much larger and, possibly more formal, basic social units than elsewhere. At Bouqras the surprisingly regular house plans suggest different attitudes from the much less regular houses seen at Umm Dabaghiyah and Yarim Tepe I. The traditions further west in north Syria seem even less similar to those

of north Iraq. Overall, this period appears to be characterised by a rather low density settlement pattern and very significant regional variation.

Due to lack of evidence, we cannot say whether this situation persisted in the Hassuna I phase, although the survey evidence does indicate that settlement patterns may not have been very different. In contrast, the Hassuna II/III evidence suggests a very different pattern. However the survey evidence is to be interpreted, settlement was more dense and more evenly spread than previously. Hassuna II type pottery seems to be restricted to north Iraq, although we may suspect that it is also present but unidentified on the other side of the border, in north-east Syria. There are a few more definite links with north Syria in terms of ceramics with husking trays, usually thought characteristic of the Hassuna, present in local late Neolithic assemblages in the Balikh valley. The small quantity of Archaic Hassuna pottery at Bouqras may also suggest a widening of contacts at this time.

These links may presage the situation in the Hassuna III period. The very broad group of painted ceramics, which characterise this phase, have a distribution very different from those seen earlier. It is suggested in chapter 3 that we should see the painted ceramic assemblages of Tell es-Sawwan, Baghouz, Tell Shimshara and Khirbet Garsour as a linked phenomenon in contrast to, but evolving out of, the basically incised ceramic assemblages of the Hassuna II phase in north Iraq. This is a much more widespread tradition and seems more internally consistent. Its influence also extends to north Syria where characteristic Hassuna III pottery appears at Tell Sabi Abyad in association with local pottery. One could look for even wider links. Some of the motifs in Ubaid 0 and Ubaid 1 ceramics share similarities with the Hassuna III tradition and, while they are clearly not identical, contact between the two traditions seems likely. The widespread nature of the Hassuna III ceramic tradition has profound implications on several fronts, as will be discussed below. However, it does not seem to have been accompanied by comparable unity in other areas of culture. At Tell Sabi Abyad, local ceramic traditions exist alongside it. At Tell es-Sawwan, the burial customs and architecture still seem very different from those in the Hassuna III sites further north in Iraq. Whatever the Hassuna III/Samarran ceramic assemblage represents, it is *not* a single cultural adaptation.

Redating the Halaf expansion

The idea that there was a huge increase of the Halaf culture which took place sometime in the middle of the Halaf phase has had considerable currency and influence. It has been proposed that the Halaf culture originated in an area in the north of Iraq and spread some time later to the west (e.g. Mellaart 1975). The opposite has also been suggested, that the Halaf originated in northern Syria and spread east (Copeland and Hours 1987a). On the previously available evidence, both interpretations seemed reasonable and obtaining an understanding of the mechanisms behind them desirable. However, a purely Halaf expansion now seems untenable. The expansion did not happen during the Halaf but began several hundred years

earlier in the Hassuna III phase. Further expansion may have followed, although we must be wary of over-interpreting negative evidence. Indeed in central Iraq the closely linked or identical Hassuna III and Samarran pottery traditions seem to have diverged later with Hassuna III developing into the Halaf in the north and the Samarran, probably, continuing longer in the central area until it developed into the Choga Mami Transitional and finally became assimilated into the Ubaid tradition.

This expansion was solely that of a potting tradition. It is only in the phase Halaf Ib that we can see close similarities in other cultural areas in both north Syria and north Iraq. This much less sudden change than previously envisaged makes the expansion much more easily interpreted as the adoption and alteration of specific cultural traits over time rather than as a sudden development.

The origins of the Halaf

Another aspect of the Halaf which has received considerable attention is its origins. Originally it was seen as appearing suddenly in north Iraq and then spreading, leading to suggestions that it was carried by a foreign ethnic group, often seen as originating in south-eastern Turkey (e.g. Mallowan 1935, 177; Bogoslavskaja 1972). More recently the Halaf has been interpreted as developing in north Syria, rather than its traditional heart-land in north Iraq and north-east Syria at all (Copeland and Hours 1987b; Akkermans 1990). While I suspect that the pursuit of origins of cultures in archaeology may prove to be misleading in most cases, the close links between the Hassuna III sites of Khirbet Garsour and the Halaf Ia site of NJP 72 in north Iraq suggest that we must see the two ceramic traditions as being closely linked. However, rather than claiming that, on this evidence, the Halaf originates in north Iraq, it is better to think of it evolving out of a tradition which was already very widespread. It probably developed roughly in step in the Balikh valley and north Iraq and all points in between, although it would seem that, during the same time, the Balikh valley was being increasingly linked into the same ceramic tradition as the north of Iraq and that the western boundary of the system may have already reached the bend of the Euphrates. The Halaf did develop out of what was ultimately a specifically north Iraq potting tradition but it would be wrong to assume that the impetus which lay behind the actual change was from north Iraq, or that the exact point of the change is either significant or detectable.

The later Halaf

The later developments of the Halaf build, in terms of their spatial distribution, on those of Hassuna III. Unfortunately we know almost nothing of Halaf Ia but it would seem that during Halaf Ib the pottery tradition evolved over a wide area. It was not without regional variation but, unlike central Iraq, it retained a broad unity. As well as pottery, there was a measure of cultural unity in other regards such as architecture, seals and some figurine types. Settlement density seems to have increased further towards the end of the period. Ultimately, Halaf II

seems to have first assimilated aspects of the southern Ubaid ceramic tradition, in the Halaf-Ubaid Transitional, before evolving into a distinctive northern Ubaid cultural tradition.

Spatial Organisation of Culture

In the introduction, it was noted that the archaeological culture group has been the basic method of visualising the late Neolithic of Iraq, whether implicitly or explicitly. The question was raised as to whether it was, in fact, appropriate or whether it is actually misleading and raises spurious problems. Although almost all of the theoretical and practical work in refining our use of 'culture' to describe spatial entities has been carried out in areas other than the Near East, there is no inherent limitation on its use. There is no reason why prehistoric societies in north Mesopotamia are uniquely suited to description by traditional culture groupings. If there are reasons for questioning the use of the culture concept as the fundamental analytical unit in Europe or America, there are reasons to question its use in the Near East. Indeed the lack of re-evaluation of the validity of the assumptions of north Mesopotamian prehistory make such a re-evaluation even more necessary.

Even if culture groups can be defined, and represent valid archaeological entities, a part of the problem of archaeological cultures has been relating them to real-world entities. The simplistic equation of a culture group with an ethnic, tribal or linguistic group has long been questionable (e.g. Childe 1951, 47 and the examples quoted in Hodder 1978). To attempt to recognise this problem, and define culture groups in a way that might represent something more than a purely typological function, the definition of an archaeological 'culture' has been refined and redefined in different ways. Clarke has argued for it to be seen as a polythetic entity, which recognises some of the real-world problems (Clarke 1978). Others (for instance Sherratt 1972) have redefined it as an area of high internal interaction. This difficulty of definition is, in part, the problem; even if we can genuinely define a entity as a cultural group, without some theoretical cognate in the 'real world', it is difficult to treat its developments and interactions in a convincing way.

Along with others, Shennan has attacked the use of any sort of archaeological culture model at all (Shennan 1978). He has stated that viewing "artefact distributions in terms of dichotomies between 'different' culture groups is simplistic and misleading, and conceals large amounts of information." (Shennan 1978, 135). Even where the archaeological culture has been accepted as a valid entity to define, the method of definition of these entities has been questioned. The view that one aspect of culture (typically pottery) is somehow more fundamental than others, and that the others should somehow or other be considered in relation to it, clearly rests on questionable assumptions. Similarly the view that there is a core area for a culture group, somewhat analogous to a 'type' rests on shaky grounds (Renfrew 1978). Shennan has suggested that the very imposition of 'culture' entities on the spatial trends of artefacts actually creates spurious problems, such as having to look for the origins of the (non-existent) cultures (Shennan 1978, 114).

If we view the late Neolithic in north Mesopotamia as divided into discrete culture groups, defined by a core of associated traits, emphasising the dichotomies between the culture groups, we will have to look for explanations of the transitions, both temporal and spatial, between the cultures which account for apparent, major changes in adaptive strategy. If we use some alternative model, more flexibly defined, perhaps emphasising the continuities in some aspects of culture, then the explanations for change need be much less dramatic and possibly disappear altogether. Intuitively, I feel that the use of culture groups has to be demonstrated rather than assumed because of the more dramatic explanations they may require.

A prime requirement of any alternative approach is that it has to be appropriate to the archaeological evidence and maximise the use of that evidence. In particular, we should try to avoid imposing a model which carries with it a series of, possibly unjustified, assumptions. Any assumptions which have to be made must be explicit.

Therefore, to what extent does the culture group model fit the data for the late Neolithic of north Mesopotamia? The ceramic phases, which form the basis of the spatial and chronological divisions, have been the ultimate defining factor in establishing the traditional cultural boundaries. They no longer seem suited for this. Certainly there are no firm bounds in time and it may be expected that many of the phases merge almost imperceptibly from one to another. In space the pattern is less clear. Many of the apparent major regional differences, such as that between Proto-Hassuna in north Iraq and Tell es-Sawwan I in central Iraq or Hassuna II in north Iraq and the Balikh IIC pottery in north Syria must simply be a result of the large gaps between the excavated sites. In reality there may be gradual changes taking place between the excavated sites which are, relative to the distances involved, no greater than the changes we can observe within the Proto-Hassuna. In other words, any boundary between ceramic traditions in space may well be illusionary. The only major exception to this is once there is a coherent pottery assemblage across much of north Mesopotamia from Hassuna III onwards. In this case, we do know enough to suggest that, while there were undoubtedly gradual transitions at the edges of the Halaf pottery distribution as well as internal regional variation, there remained a considerable degree of continuity over a very large area.

Looking beyond the pottery, we can see that other aspects of material culture do not always coincide with the ceramic evidence. This has been noted above, and other examples occur within the main text of this thesis, so only selected examples of this will be repeated here. In the Proto-Hassuna, although there are distinct variations, north Iraq, Bouqras and Tell es-Sawwan I can be viewed as part of the same general tradition. Yet their material culture is different in almost all other regards. The same situation exists, but with even closer ceramic links, in the Hassuna III/Samarra phase and divergent architectural and burial customs. It might be possible to avoid these criticisms by ceasing to use pottery as the main determinant of cultural affiliation and defining it on a polythetic basis, which would then

place north and central Iraq as parts of two different cultures, for which one might re-introduce the traditional Hassuna and Samarran labels. Although this appears to allow us to define the culture better in space, it does nothing for their definition in time. In particular, in chapter 7, the possibility was suggested that critical changes in settlement distribution may have occurred within ceramic phases, not between them. We can also see that architectural changes did not coincide in time with the pottery changes (for example tholoi both start before and continue after the Halaf). One of Childe's last definitions of a culture was that

“a culture must be distinguished by a plurality of well-defined diagnostic types that are repeatedly and exclusively associated with one another and, when plotted on a map, exhibit a recognisable distribution pattern.” Childe 1956, 123

I think it would be stretching this definition too much to suggest that it fits most of the late Neolithic in north Mesopotamia. Instead of looking for discrete cultural groups, we must look to a looser and more flexible method to examine the spatial distribution of material remains, and one which may be more amenable to correlations with real world entities. In particular, it may be better to seek a means of investigating the patterning of the data before imposing a model. There may, however, be one exception to this rejection of the culture group concept. The late Halaf still retains many of its distinctive characteristics. It does have repeated associations of a range of diagnostic types over a very wide area, although it is true that these types are not completely exclusive to it. Renfrew's contention is that if a core site is arbitrarily chosen as the basis for the definition of a culture, adjacent areas will be similar to it. The similarity will decline as one moves away from the core site and the edges of the culture group will be defined by an arbitrary drop off in similarity (Renfrew 1978). Taken literally this is almost certainly true of the late Halaf as well; the edges of the culture can only be defined arbitrarily by reference to sites many hundred kilometres away rather than by reference to adjacent areas. However, we cannot ignore the fact that, within these boundaries, there is great similarity in material culture over a huge area. Shennan's reaction that “cultures cannot be considered as historical actors since they are not real entities” (Shennan 1989, 6) is, in this case, an over-reaction since the late Halaf culture group does seem to be a real entity with an existence beyond a simple pottery distribution. The traditional culture group may not necessarily be the ideal way to describe it, but the phenomenon remains and explaining it and how it arose must be one of the challenges of this period in the future.

Towards an alternative approach

Clearly it is not enough to reject the culture group model without some alternative approach to spatial patterning. One of the problems of the culture group, even in the late Halaf, is that it tends to emphasise internal unity and external dissimilarity. Thus, at the same time as it emphasises problems of culture origin and transition it may distract attention from how the culture maintained itself internally. During the Hassuna and early Halaf, there is no

indication that culture groups are appropriate and, in the late Halaf, I suspect that it is the internal dynamics which may hold the key to understanding. As suggested above, it would be better if any new approach to examining spatial trends provides a more flexible and heuristic procedure rather than simply replacing traditional cultures with an equivalent construct.

In investigating spatial distribution, it is, unfortunately, necessary to use pottery as the primary means of investigation because this is the only artefact class found in large enough numbers. One appropriate approach, developed here, is the stylistic analysis of the decorative motifs found on the pottery of the late Neolithic.

Shennan has noted the tendency of style to act as a new focus for the same concepts as cultures (Shennan 1989, 18). This is undoubtedly a danger and it is important not to assume automatic real world correlates. However, stylistic analysis does afford a mechanism to define spatial entities and quantify some of the interaction using different cultural spheres separately. A consideration of stylistic variation may be the most promising means of identifying and understanding the regional variations and similarities which contribute critically to our concept of how society functioned.

Stylistic Variation

The analysis of style has a relatively long history. Much of its explicit analysis, particularly regarding ceramic decoration, can be traced back to American archaeology in the 1960s (see the summarised history of this subject in Plog 1980, 2-3). Its study has been generalised more recently and specific roles and functions which it can perform in society have been identified using both archaeological and ethnographic evidence (see, for instance, the papers in Conkey and Hastoff 1990). In particular, the role of style in reinforcing shared identities or differentiating between social groups has been stressed.

In general, style in artefacts can be considered to be "a form of non-verbal communication through doing something in a certain way that communicates information about relative identity" (Wiessner 1990, 107). This use of style can function on several levels and at its most basic is a relatively banal statement. At this basic level, it can be equated with Sackett's isochrestic interpretation. He considers isochrestic variation to be a passive use of style where the choice of options in the manufacture and decoration of an artefact is made through habits ingrained in learning by rote within a social group. It is not used to convey a message to others, although it may still be diagnostic of a group and have fulfilled a role of binding them together (Sackett 1985, 157). At a more significant level, is what Wiessner has termed "stylistic variation"; here the term "symbolic variation" suggested by Plog (1990) will be used. Wiessner has defined this as follows:

"Style ... has a behavioural basis in the fundamental human cognitive process of personal and social identification through stylistic and social comparison. In this process, people compare their ways of making and decorating artefacts with those of others and then imitate, differentiate, ignore, or in some way comment on how aspects of the bearer relate to their own social

and personal identities. Style is thus not acquired and developed through routine application of certain standard types, but through dynamic comparison of artifacts and corresponding social attributes of their makers." (Wiessner 1985, 161).

Plog has distinguished a third level of stylistic behaviour, which he terms "iconological variation" (Plog 1990). This is a specific type of symbolic variation where "stylistic statements conform to certain spoken ones, containing clear, purposeful, conscious messages aimed at a specific target population" (Plog 1990, 62).

Although these three major levels of stylistic behaviour are useful and are adopted here, they are not necessarily mutually exclusive. To some extent their function must vary according to the target audience. Different traits may distinguish an individual group from its neighbours rather than from far-flung non-neighbouring groups. A similarity to a neighbouring group may be a difference from a distant group. What might be considered a significant difference with a neighbouring group in proclaiming a separate identity might be insignificant, overshadowed or simply not understood in relation to a group far away. Thus, neighbouring groups may be similar in many respects in their use of ceramic decoration. On that level much of the decorative style could be considered to be isochrestic and the specific variations used to differentiate between these groups to be symbolic variation. However, in interaction with a group with a completely different decorative style a much greater proportion of the variation might be functionally symbolic. This distinction between levels of comparison is similar to, although more generalised than, MacDonald's distinction of style being used to project individuality as opposed to, and possibly in conflict with, its use to project group conformity (MacDonald 1990; also Wiessner 1989, 659-660).

It must be accepted that the patterns of variation in stylistic attribution will be complex. Hodder has noted that "... the distribution of material cultural traits ... is not necessarily and wholly structured by patterns of interaction. It is quite possible to have distinct groups with distinct material cultures but who have very strong and frequent interaction" (Hodder 1977, 269). The converse is also true. Therefore, even if we can isolate stylistic variation and present possible interpretations of its function and implications, we must be cautious of too easy an acceptance of these interpretations as more than hypotheses. In this context, the suggestion of Plog, following Wobst (1977), that the quantity of stylistic behaviour increases with the size of the social network in which an individual participates (Plog 1980, 119), must be treated with interest but also caution. Similarly Hodder's own proposal that material culture may be employed during times of instability to emphasise ethnic distinctions must be treated cautiously (Hodder 1979).

Changing uses of style

As has been suggested above, style can be both an active and a passive way of representing and reinforcing divisions and similarities in society. Style is likely to have functioned in

many areas of material culture. Areas such as dress, which may have been very important because of their high visibility, are not available for stylistic analysis. We are, therefore, limited to examining the role of style through the decoration of pots at different phases of the ceramic sequence. We may suspect that, given the ubiquity of decoration on pottery by the end of Hassuna III, it was also important in the past.

In this discussion the tables referred to are in appendix B and much of the detailed discussion of individual sites has already been covered in chapters 3 and 4. Although the warnings given in chapter 2 should be remembered, the Robinson's coefficients of similarity between the motif assemblages at different sites are sometimes particularly suggestive (tables B.83-B.84). In theory, and in practice when better samples are available, the use of similarity coefficients gives great flexibility in our use and interpretation of stylistic variation. Because it quantifies the strength of the relationships between sites rather than setting fixed boundaries, it can be used to analyse both gross stylistic differences and subtle regional variations within a wider style. This combination of flexibility and greater precision of measurement represents one of the advantages of this approach over the culture group concept. Because it focuses on a specific aspect of culture rather than attempting to synthesise all areas of material culture, it makes fewer assumptions.

Proto-Hassuna/Hassuna I

The pottery in this phase must be considered to be a medium which is relatively unsuited to the display of stylistic content. It is composed of mainly coarse, utilitarian wares with much of the variability functionally determined. There is still some potential for stylistic differentiation, but the major pottery regions may be distinguished partially on stylistic grounds but differentiation based on technology and, in particular, vessel shape is much clearer. The last may not have been stylistically but functionally determined. More significant, on the present quantity of evidence, is the tentative evidence for variation within the Proto-Hassuna ceramic region. The presence and absence of relief decoration may, at times, emphasise regional distinctions within north Iraq. There is certainly an increase in the potential stylistic content of the ceramics in Hassuna I but lack of well published sites forbids any more detailed interpretation.

Hassuna II

Unfortunately there is very little evidence from anywhere except the north of Iraq for this phase. What is known of Syria suggests that there was relatively little differentiation ceramically between sites in anything other than functional aspects.

In north Iraq, there is a greatly increased quantity of decoration and thereby an increase in the potential stylistic information. The marked differences between Tell Hassuna and Matarrah suggest that style was at least reflecting spatial differentiation (tables B.74-B.76). It is significant that, although it has been argued here that they are separated in time, the painted motifs of Matarrah are more closely linked to those of Tell Shimshara than those of

Tell Hassuna. This suggests that the use of style in painted pottery to symbolise the segregation of areas persisted over a considerable period of time and that it was not only providing internal cohesion but taking an active, symbolic role in providing differentiation within a single ceramic tradition. It is very unfortunate that, because of the way in which they were published, these comparisons are made largely on the basis of the painted motifs rather than the dominant incised decoration.

Hassuna III/Samarran

This is the first very widespread tradition which can be seen over northern and central Iraq. It shares many elements over this wide area and both the medium and modes of expression are very consistent. However, there are still strong, apparently regional, differences emphasising different parts of the tradition and different types of motifs. The complex designs appear to be carrying much symbolic information and acting both to provide cohesion and integration within the general tradition and also to emphasise internal divisions within it. A division between Hassuna III and Samarran has traditionally been made. This division may only exist on certain levels. The decorative traditions are sufficiently similar for style to have been a uniting factor when compared to neighbouring, less-related traditions. However, in internal comparisons and in the light of contrasts in other areas of material culture, the differences between Samarran and Hassuna III traditions were probably subtle, but very significant.

In northern Syria, this new decorative tradition takes root alongside the local late Neolithic pottery. This suggests that parts of the Hassuna/Samarran stylistic and symbolic system were being adopted alongside local elements. It is not clear to what extent they were participating fully in this system. It may be significant that, by and large, the Hassuna/Samarran style pottery existed as a new category alongside the local pottery rather than being absorbed into it. Ultimately, indeed, its features came to dominate the local ones. This suggests very strongly that whatever the nature of the contact was, it was intense enough and significant enough to make it advantageous for people in northern Syria to fit, to a considerable extent, into the same stylistic system, using the same decorative elements, apparently with the same 'syntax'. It should be noted that the only real 'Hassuna' element in the earlier Balikh ceramic assemblages is the husking tray, which is most likely to be a functional rather than stylistic trait.

The Hassuna III Expansion

As discussed earlier, it should be apparent that the concept of a Halaf expansion occurring around the middle part of its period must be abandoned. Instead it would seem that the most significant, initial expansion occurred prior to the appearance of Halaf pottery. It is interesting that it began with the spread of a single cultural attribute but one which is highly visible and which has a very high potential stylistic content. At Tell Sabi Abyad, it may have been caused by a need to adopt stylistic means of portraying affiliation, possibly with groups further east with whom previous contact had been less intense. It is tempting to follow

Hodder in suggesting that this may have been a response to a period of instability (Hodder 1979). This may well be an instance where conforming to new cultural norms from further east may have given an adaptive benefit.

In north Iraq and north Syria, this Samarran/Hassuna style evolved into the earliest Halaf style, Halaf Ia. Two different routes for this evolution can be traced; that from Khirbet Garsour to NJP 72 and that seen at Sabi Abyad. I think that it would be wrong, at this stage, to suggest that one happened first and then influenced the other. Rather it seems more likely that the developments took place as stylistic changes in response to the same impulses at broadly the same time over a very large area in which a high degree of inter-communication had already been established. The evidence appears to indicate a continued and increasing internal communication rather cultural domination of one area by another.

Halaf Ia-IIa

From this point, the present, rather scanty, evidence indicates that northern Iraq and northern Syria functioned as a single stylistic zone. There are clear regional differences, most obviously in vessel shape but also in the range of motifs used. However, the same general choice of shapes and motifs seems to be available over the whole area. The role is still symbolic in emphasising both the unity and the diversity within an area.

During this period central Iraq appears to have diverged, continuing to use and develop the Samarran style. Here, stylistically at least, it may have become more important than previously to emphasise internal unity and difference from areas to the north. This may have resulted from a loosening of the social and economic links and a consequent decline in the information flow between the two areas, but an alternative possibility is perhaps more persuasive. This is that evolving social structures and increasing integration led to a much greater degree of interaction within specific zones. This may then have encouraged an increased use of stylistic information to distinguish between different areas of interaction. There seems, on the basis of very slender evidence, to have been greater similarity between the Balikh and north Iraq in Halaf Ia than in Halaf II. If this proves to be the case, the possibility will arise that there was a generally increasing need to emphasise regional and group distinctions by the start of Halaf II.

By the end of this period, and certainly in the following period, there is evidence that certain sites were forming the focus of these zones. Chagar Bazar and Arpachiyah were probably supplying certain groups of pottery to the surrounding areas. Arpachiyah and other, as yet unknown, sites were centres for obsidian distribution. These and other, as yet unseen, social and economic ties may well have emphasised the already existing stylistic divisions.

Halaf IIb

Much of the same differentiation visible in earlier phases of the Halaf still appears to apply in the Halaf IIb phase. A general stylistic coherence is clear, as are regional variations, sometimes extremely specific variations and possibly emphasising extremely fine spatial

divisions. We can point to a particular type of small, open dish with rather regular dimensions which appears in the Mosul area. The exterior decoration is composed of very neat bands of motif 305, dots on a band, and motif 512, dots between bands, together with horizontal lines. The interior decoration most frequently includes chequerboarding on the interior rim but other motifs do occur. There are many examples from Arpachiyah, of which some are published (Mallowan and Rose 1935, fig. 53, 2, fig. 61, 2) but many more are preserved in museums (there is an especially large collection in the Institute of Archaeology in London). All the examples with stratigraphic information come from TT6 to TT8. At this site these bowls seem to be an example, almost unique in the late Halaf, of a single, complex decorative concept being replicated in large numbers. To a lesser extent, similar open bowls with rows of diamonds between parallel lines on the exterior fall into a similar group but the ranges of dimensions and of associated decoration is greater (Mallowan and Rose 1935, fig. 61, 1, fig. 53, 1). What makes the first group especially interesting is that considerable numbers of exactly the same type occur at Tell Azzo I (personal observation) near Mosul. There are occurrences of this type further away. At Tepe Gawra there is a single published example of each type despite the possibility that the site was receiving large numbers of open bowls from Arpachiyah (Tobler 1950, pl. CXI, 14 and 15). At Kharabeh Shattani there was again one example of each type (Campbell 1986, fig. 6, 2 and fig. 33, 6), Yarim Tepe II has produced one very fine example (Merpert, Munchaev and Bader 1976, Pl. XXXI) and another individual specimen comes from NJP 72 (fig. 4.3, 1). Although it must remain tentative, I suggest that the isolation of specific styles, such as this, may allow us to isolate quite small regional groupings. If these bowls are characteristic of the style of the latest Halaf at Arpachiyah, their distribution suggests that, close to Arpachiyah, there was a high degree of stylistic similarity but further away it appears as only a subsidiary (imported?) element. If this is so the stylistic unit of which Arpachiyah was part was rather small.

A new element in the use of style is the bichrome and polychrome pottery in Halaf II. This is an immediately distinctive ceramic style. Technologically it is considerably more sophisticated than monochrome pottery and firing control seems to be critical to its production. It appears to occur with much greater frequency at some sites than at others. Typically these are larger or more deeply stratified than the sites without polychrome pottery (e.g. Arpachiyah, Chagar Bazar, Tell Brak, Tell Aqab as opposed to Kharabeh Shattani, Umm Qseir, Shams ed-Din). Although the TT6 Burnt House at Arpachiyah has distorted our view of the late Halaf through its unparalleled concentration of polychrome pottery, it is very significant that here the pottery occurs in a context where there are other reasons to believe there is extensive, possibly institutional, control over resources.

At Tepe Gawra, Davidson has suggested that amongst the group of pottery probably imported to the site was polychrome pottery and all the analysed large open bowls. At Tell Aqab, the three examples of trichrome vessels were also imported. Chagar Bazar appears to have been exporting a group of polychrome jars to sites in the surrounding area. Although it

should also be noted that some bichrome pottery was being manufactured locally at Tell Aqab (Davidson 1981, 75), there does seem to be persuasive evidence that the manufacture of some types of shallow, open bowl and the use of the more sophisticated types of polychrome decoration was restricted to certain sites, for which there are other reasons to believe had central importance. The quantities of such pottery are greatest at these sites and the only large *in situ* sample comes from a high status or institutional context and may have had a specific ceremonial role. This type of pottery, therefore, appears to have been used in specific contexts and the access to it was only through certain, central sites.

It can be suggested that polychrome pottery was serving a stylistic role in explicitly symbolising a position in a hierarchy. This, for the first time, is an ideological role symbolising power and controlled through restricted access to technology.

Social Organisation and Evolution

Developing Complexity

Even without a detailed justification, it seems clear that during the late Neolithic we are seeing the evolution of increasingly complex societies. Although the Near East has been relatively neglected in this area of research, the study of emergent complex societies has a considerable history. Much of it has used the models of social organisation advanced by Fried and Service in the early 1960s (Fried 1960; 1967; Service 1962). Although many of their concepts are linked, Fried emphasised the changing status of individuals in his division into egalitarian, ranked, stratified and state society, while Service tended to examine the nature and scale of cultural organisation in his division into band, tribe, chief and state. These divisions have been the focus for a great deal of later work. What ever the intrinsic merits of these divisions, they cannot be taken too literally as stages through which every society must pass and all of whose attributes must be assumed.

“Band, tribe, chiefdom and state are highly idealized concepts that are useful in introductory texts and global syntheses. But a relative minority of cultural systems fall conveniently within these pigeonholes, rendering them inadequate for detailed analyses of organisational variation” (Plog 1977, 139)

Many of the earlier studies of complex societies, using these concepts, did tend to fall into these traps. Some of the older models of chiefdoms are either rather vague and generalised or tailored to specific areas and, therefore, not useful general models at all. An example is Renfrew's division of chiefdoms into group orientated, who expressed themselves through major monuments, and individualising, who expressed themselves through the burial of elites with status burial goods (Renfrew 1974). This division is not useful here as neither elements are archaeologically visible in this period and area.

A too ready use of this terminology, like a too liberal use of culture groups, can actually obscure more interesting information. Simply identifying a culture as being a chiefdom on the basis of a check list of features does little to add to our knowledge of that society while the concept brings with it a range of possibly misleading assumptions. Watson and LeBlanc could be criticised for using such an approach when they concluded that Halaf society was chiefdom based (1973). While there can be little doubt that they are right in a very general sense, it gives us no new information or insight into Halaf society. The terminology itself can cause confusion. Hijara suggests that Halaf organisation in north Iraq was tribal on the basis of parallels with the near modern tribes in the same region, but these tribes would be categorised as chiefdoms (Hijara 1980).

More recently, Service's chiefdom level of organisation, in particular, has been increasingly a focus for the discussion of the development of complex societies (e.g. Earle 1991). This has led to more detail in the definition and a division into simple and complex chiefdoms. Two recent definitions of chiefdoms are:

"a polity that organises centrally a regional population in the thousands. Some degree of heritable social ranking and economic stratification is characteristically assumed" Earle (1991, 1).

"Chiefdoms are societies at the threshold of social complexity. Pervasively hierarchical, they have hereditary social inequalities, but not the state institutions with which more complex societies maintain such inequalities" (Gilman 1991, 146).

These definitions illustrate one of the remaining major problems with the use of such contexts in a specific study of the late Neolithic in north Mesopotamia. Are the parcels of features assumed for chiefdoms, the heritable social ranking for example, necessary accompaniments of a society which falls into that category? Because of this doubt, some of the more useful contributions of the study of chiefdoms will be returned to later but a looser approach will be taken first. A synthesis of available evidence on the development of social complexity in the late Neolithic will be undertaken on its own and only subsequently looked at in relation to concepts arising out of the study of chiefdoms.

Before discussing it further, one thing which must be remembered is that our whole view may be distorted by the Burnt House at Arpachiyah and our interpretation of it. So far this context is unique and it is luck that it was found. Without it, our knowledge of the later Halaf would be very much poorer and we should not assume that similarly outstanding sites or structures did not exist earlier—they may simply not have been found.

In the Proto-Hassuna, the initial colonisation of the plains of north Iraq and north-east Syria seems to have been still underway. There appears to have been population expansion but in a sparsely populated landscape this is unlikely to have caused social stress. With the lack of social pressures there may have been little need for each community to establish its

position within a wider context. Nonetheless there seems to have been a considerable degree of social complexity. There is differentiation between settlements, in function if not in status, as indicated at Umm Dabaghiyah. The obsidian exchange network seems to have been one of directional trade and to have been of considerable reliability. The example of Magzaliya with its remarkably high quantities of obsidian suggests that this may only be a minimal view of the trade. Other materials and items were presumably exchanged as well. There is little evidence of social hierarchies, except for the possible interpretation of the Tell es-Sawwan I burials as a case of attempting to establish prestige through the deliberate deposition of valuable objects. Nonetheless it is a relatively high starting point in social complexity, even if it would not necessarily have fallen into the traditional chiefdom category. The example of Çatal Hüyük at or slightly earlier than this date is an appropriate reminder of the potential complexity of society in the Near East at this time.

Little information is available for the following period. However, the latter part of the Hassuna seems to have been a period of critical change. The increasing density of settlement in Hassuna II/III in the Iraqi north Jezira may be a more general trend. It may be particularly associated with the growing use of symbolism and decoration on pottery both to convey stylistic messages to other groups and to emphasise the position of individuals or small groups within society. This may have been caused by the much greater degree of inter-action between different groups. Also notable is the very wide geographical range in which variants of the same form of stylistic expression were utilised. It certainly suggests a much greater degree of social interaction, not just with neighbours, but over longer distances. There is little direct evidence for why this was so or the form it was taking. The quantity of material being exchanged does not increase, in the archaeological record at least, although we can guess that pottery was being exchanged to a considerable extent, if only as a mechanism to keep stylistic expression roughly in step. There is no evidence for a greater degree of political integration in the form of high status burials of rich deposits.

While it is important to emphasise that population pressure may be rather too simplistic, an explanation it may have been a factor. Joan Oates has convincingly argued that at no time during the Hassuna or Halaf did the population exceed or even approach the carrying capacity of northern Mesopotamia if the available economic strategies were utilised (Oates 1980 supported by the more detailed arguments of Akkermans 1990). Therefore, apparent increases in population, as at the end of the Hassuna, are not automatically critical events in the functioning of a cultural system. The results are less predictable. They may simply cause an increase in density of settlement or they may cause a change from a very low efficiency economy to a more efficient one. The perception of lack of space may result in more profound changes if territorial organisation is seen as being put under pressure, but this is, at present, not directly visible in the archaeological record. We can suggest, however, that it is not coincidental that there was an increase in the use of ceramic styles as a potential

symbolism of group identity at the same time as there is a possible increase in settlement density in Hassuna II/III.

A second, associated factor may be at work. The environment of the north Jezira is fertile but potentially fragile. We know that it changed from being a shrub-steppeland, with apparently considerable quantities of large game animals, to a much more degraded environment very similar to that of today with few large wild animals and few trees. We do not know exactly when this happened, but it seems reasonable to suggest that it was underway during the late Hassuna. This impoverishment of the environment may well have constrained the potential subsistence strategies. More importantly it may have ended the traditional recourse of low intensity exploitative systems in hard times, the option of switching to an alternative strategy. Different methods of ensuring against periodic failures in food supply may have been necessary. Storage is one answer, either of grain or in the form of animals, and the herding of the latter may involve greater and more widespread contact with neighbouring groups. However, the presence and expansion of exchange networks also facilitates the conversion of food into more durable objects; social storage as it has been termed (Halstead and O'Shea 1982). This has considerable potential to lead to social inequalities.

We have very little evidence in the Halaf I phase, but we may suspect that there was gradual change, leading to the situation which we can see in Halaf II. By then there appears to have been considerable settlement differentiation. We can point, in particular, to the contrast between the long-lived tell sites, which have been the traditional object of excavation, and the relatively short-lived sites, known through more recent excavations and surveys. Sites such as Kharabeh Shattani, Khirbet esh-Shenef, Umm Qseir and Shams ed-Din may only have been occupied for, say, 150 years each and contrast strongly with sites such as Arpachiyah and Yarim Tepe II. Akkermans has suggested different that economic strategies were pursued by the two types of site (Akkermans 1990). We can perhaps go further. In contrast to the long-lived sites, short-lived sites do not have the full range of Halaf material culture; the exact elements present may vary but the pattern is generally the same. At Kharabeh Shattani, for instance, there are no figurines and no seals. It has been suggested above that polychrome and bichrome pottery was a specifically high status item in Halaf IIb. Its use may have been deliberately restricted to the long-lived sites. Some of the smaller sites, such as Umm Qseir, may have been established to exploit specific resources. It is tempting to see the presence of seals at Umm Qseir as representing a role in transferring resources to other settlements, in contrast to others, such as Kharabeh Shattani which lacks seals, which may have been semi-permanent satellite settlements fulfilling a different role. Some of the long-lived sites, such as Takyan Höyük (Algaze *et al* 1991, 195), may have had concentrations of population and we can speculate that later large mounds such as Nineveh, Erbil and Tell Brak bury similarly large Halaf settlements.

In addition to, and in explanation of, this emerging settlement hierarchy, we can document complexity in other areas. Obsidian and pottery exchange networks seem to be functioning on a larger scale than before and we may suppose that the exchange of other materials was in proportion. For the first time we seem to have an example, in Arpachiyah, of a site exercising regional control over this trade. One of the key innovations which accompanies this is the use of seals and sealings to mark property and, presumably, to help exercise control over the exchange networks. Although the analysis above proposed that the Arpachiyah style of pottery may only define a fairly restricted area, we may suggest that the influence of Arpachiyah may have reached much further, during the period of the TT6 building at least. What makes this surprising is that Arpachiyah is long lived but relatively small. Very tentatively, one might suggest that Arpachiyah was near the centre of a wide ranging economic and, probably, political network but was also taking part in a much more local social group whose presence can be seen in the common occurrence of specific vessel types. The relationship of Arpachiyah, with its demonstrable control or influence over a large area, with the postulated larger concentrations of population is very problematic, but it must await proof of the existence of and investigation into the nature of these larger sites.

Given this evident centralisation of some functions at Arpachiyah, there is a lack of an obvious social hierarchy, the inevitable accompaniment of this degree of social complexity in a traditional chiefdom setting. The only clues to such an hierarchy are indirect. Certainly there is a major concentration of wealth in the Burnt House, but we cannot assume that it is associated with an individual rather than an institution. Similarly the wealth in some burials at Yarim Tepe, with the single exception of the outstanding burial on Yarim Tepe I, is probably not associated with the diseased individual in life. Rather they hint at an attempt to gain prestige by conspicuous consumption. Finally, the possible restriction of polychrome pottery to specific, high status contexts suggests an attempt to symbolise power by specific stylistic devices. While all this does suggest individual status, it is also compatible with power being concentrated in institutions. There is no evidence to apply Renfrew's dichotomy between individual and group oriented chiefdoms.

While it is difficult to apply the more traditional definitions of chiefdoms to this situation, Kristiansen's proposals are possibly very useful. He sees a new level of "decentralised, stratified society" as a vital jump from tribe based society on their way to state. Chiefdoms are related to the tribal level, where kin is the vital means of linking people, rather than this level. "Decentralised, stratified society" is seen as having decentralised subsistence patterns, formalised ownership of land and no towns. Instead there is specialised craft production, connected to elites, and control and taxation can play a significant economic role in development (Kristiansen 1991). Sahlins had previously highlighted the importance of shift from kinship to property as being a crucial development (Sahlins 1972, 92-94). It would be foolish to accept this as a new category into which late Halaf society in north Iraq could

be slotted without qualification, but Kristiansen's model is a surprisingly close fit and may be a useful starting point for future work.

Again the reasons for these changes must remain speculative, not least because we do not know what was happening in the preceding Halaf I phase. As with the changes in Hassuna II/III we may suggest some degree of population or territorial pressure from the survey evidence. Perhaps more useful would be the general observation that, because of the changes which had occurred in society and the environment, any major imbalance in the system could no longer be accommodated by a reversion to a looser organisation or less intensive subsistence. The only route was towards greater complexity and dependence on the integration of individual settlements into the wider system. It is a situation in which control of territory and property may have become more important in social organisation and in which some of the first prerequisites of much more complex, state and urban systems of organisation may have been first established.

Appendix A

Description of Khirbet Garsour and NJP 72

The North Jezira Survey Project

From 1986 to 1990 Tony Wilkinson undertook an intensive survey of the area of the north Jezira which will be affected by the North Jezira Irrigation Project. With his cooperation, I studied the pottery from all the sites which had produced late Neolithic material. In addition, I revisited all the sites which the initial surface collections indicated had only been occupied in a part of the period. Many of these sites had not been affected by the irrigation project at the time at which they were visited. Collections made from them are subject to the usual conditions of surface survey. Other sites, however, had been badly damaged by canal or road construction and it was possible to make much more extensive collections from freshly excavated spoil. Although the assemblages from these sites are inevitably mixed, the samples resemble those from excavated sites more than normal surveyed sites in terms of the size of sample and the degree of preservation. Where the occupation of a site was very short, we can use the assemblages as having some degree of unity. At some sites, such as NJP 119 where a canal had cut through the centre of a low, Halaf II mound, these collections could be very considerable. Two sites, one of which was later excavated by the writer, are worthy of further detail both because of their greater complexity and because of the importance of their assemblages in this thesis.

Khirbet Garsour

In 1988 the site of Khirbet Garsour (number 39 on fig. 7.4) was briefly excavated by a small team under the my direction. The site had been detected by Tony Wilkinson and, by the time the excavation started, it had already been cut along its north-south axis by a major, 4 m deep drainage canal as part of the North Jezira Irrigation Project. Although surface survey in the surrounding area had been made difficult by fresh ploughing, pottery collections along the side of the canal indicated that the maximum spread of sherds was 200 m but the majority of the artefacts were spread over about 100 m and this represents the more likely site size. In addition to the deep canal cut, there were high banks of spoil along either side of the canal

and wide areas of compacted earth where no excavation was possible. Two features were visible in the sides of the canal towards the southern end of the sherd scatter. The first, on the east side, was an area of burnt clay about 0.7 m below the present surface while the second, directly opposite on the west side, was an area of grey-green soil on the sloping bank of the canal.

An initial excavation was made outside the area disturbed by the canal and to the west of the area of grey-green soil. A 4 x 3 m trench was dug to a depth of 1.25 m before natural subsoil was encountered. Although large quantities of sherds were discovered, many lying flat in a manner which suggested they may once have rested on a surface, and flecks of charcoal and possible tauf were visible, no features were detected. The soil formation throughout the trench was well developed and seems to have destroyed any stratigraphy which may have existed.

Because of the absence of stratigraphy in this trench, it was decided to excavate the features visible in the sides of the canal. A small, 3 x 3 m, trench was excavated on the east edge of the canal to investigate the area of burnt clay. This proved to be a circular oven base with a diameter of about 1.2 m and hollowed in the centre. Although large quantities of pottery and animal bones came from this trench, no other features were detected above natural, which was found at 80 cm below the, possibly truncated, ground level. There were several shallow scoops in the natural subsoil and a 1 m diameter cylindrical pit dug to a depth of 1.6 m.

The other area of excavation was the area of grey-green soil on the side of the canal. This proved to be a deep pit which had been severely truncated on its east side by the canal. It was impossible to excavate to the bottom of this pit. Excavations were continued to a depth of 80 cm below the bottom of the canal but could not be taken further because of water seeping into the pit faster than it could be removed; such are the problems of excavating in the bottom of a major drainage canal! Although the construction of the canal may have altered the current ground level, the maximum excavated depth of the pit was approximately 5 m below the present ground level and 4.2 m below the level of natural subsoil. Its original depth must obviously have been greater, possibly by a considerable margin. The current ground water level is 9-10 m but, as it has been severely depleted by modern pumping, it seem very likely that the pit must have originally reached this level.

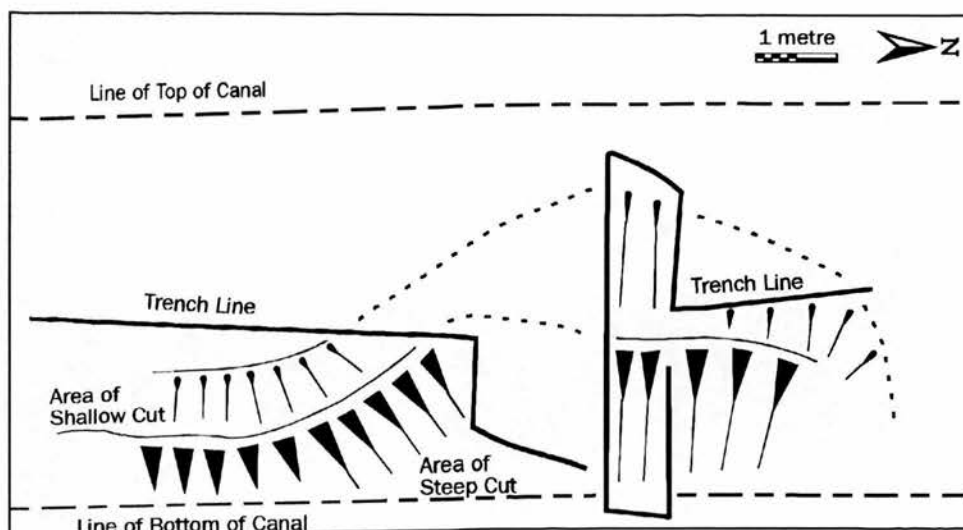


Fig. A.1: Excavation of waterhole on west side of canal at Khirbet Garsour

The top of the pit had been completely removed during the canal construction. The surviving profile of the pit, to the north and south, had a rather gentle slope down to about 3.5 m below the current ground level and it must have been of a very considerable diameter. Below about 3.5 m the excavated side of the pit was very much steeper. This is, unfortunately, not visible in the section in fig. A.2. Four major phases of fill were visible in the pit. The first fill, found only in the deepest part of the well, closely resembles the natural soil and is completely lacking in cultural remains. It seem to have been formed through wash from the sides of the pit gathering in the bottom. The second phase is made up of a complex of black deposits, presumably of organic origin sloping into the bottom of the pit. These are interleaved with patches of light brown soil and, in a few places, it was possible to excavate individual deposits within this strata separately. This seems to represent a phase in which organic refuse was dumped into an open pit. In this and subsequent deposits, pot sherds were abundant as were animal bones and, to a lesser extent, other finds. The third phase is the grey-green deposit which originally drew attention to this area. These are soils modified through gleying, a process which occurs in the presence of standing water and organic materials. This phase seems to suggest continued deposition of organic remains in a pit which, perhaps through the earlier dumping, could not easily drain into the water table or seasonally penetrated the water table. The final phase also has some traces of gleying but is much browner and has lines of silting visible in the section. It appears to have resulted from deposits around the pit being washed in gradually rather than being deliberately dumped. This may have occurred after the abandonment of the site.

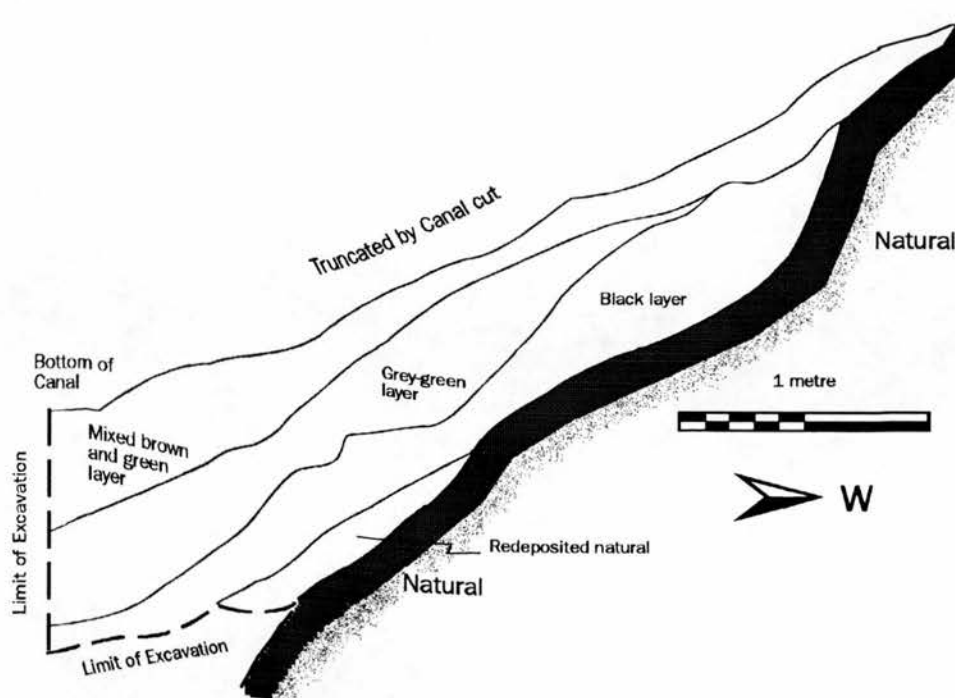


Fig. A.2: Simplified south facing section of waterhole at Khirbet Garsour

The depth of the pit, its shape (giving easy access to the central part of the pit as far as 3.5 m below the surface) and the long period in which it may have remained open all support the conclusion that it is a well or waterhole, the earliest discovered in the world.

Although the material from the pit is, technically, stratified, it would be unwise to place too much trust in this. All of the artefacts occur in deposits which were dumped or eroded into the well; some may have been dumped and, later, eroded further. It seems probable that this led to a great deal of inverted stratigraphy and mixing. However, there is no detectable variation within the ceramic assemblage. The assemblage from the well is similarly indistinguishable from any of the other excavated material. Overall, there is very little variation in the ceramic assemblage in terms of technology and style. It, therefore, seems reasonable to treat it as a whole.

Thus, all the material from the site cannot be reliably sub-divided and, in effect, can be considered on the same level as a large surface collection. I have followed this to its logical conclusion and have combined the pottery from the excavation with that collected from the spoil heaps from the construction of the canal. As with all the material collected from the surface of sites, an attempt was made to remove the bias of retrieval by systematically collecting all sherds which could be considered diagnostic; that is sherds which gave a clear guide to the shape of the vessel from which they came, such as rims and bases, or which were decorated.

Site 72

This is another site within the area of the North Jezira Project located by Tony Wilkinson. I revisited it in the autumn of 1989, by which time it had been extensively disturbed and it was possible to make substantial collections of well preserved material from the disturbances. The mound is relatively low, approximately 6 metres in height, and quite small, approximately 150m by 100m. Fig. A.3 is a plan showing how the site was divided into three main areas of disturbance, and therefore of collection. Two of these areas are at the base of the mound. On the east side a road has been constructed and adjacent to it are a number of borrow-pits made by bulldozers cutting through the archaeological deposits and into the natural subsoil. This material from this side of the tell seems likely to represent material from the entire depth of deposits on the eastern fringe of the site. On the west side a canal has cut through the edge of the site, again down to natural, and the collection made from its spoil should also represent the entire period present at this side of the site. In the centre of NJP 72 there was a deep, man-made cut making a roughly rectangular trench about 1.8 m deep. It was possible to collect pottery both from the spoil from this area and from the sections of the cut, which provided some degree of control on the other samples.

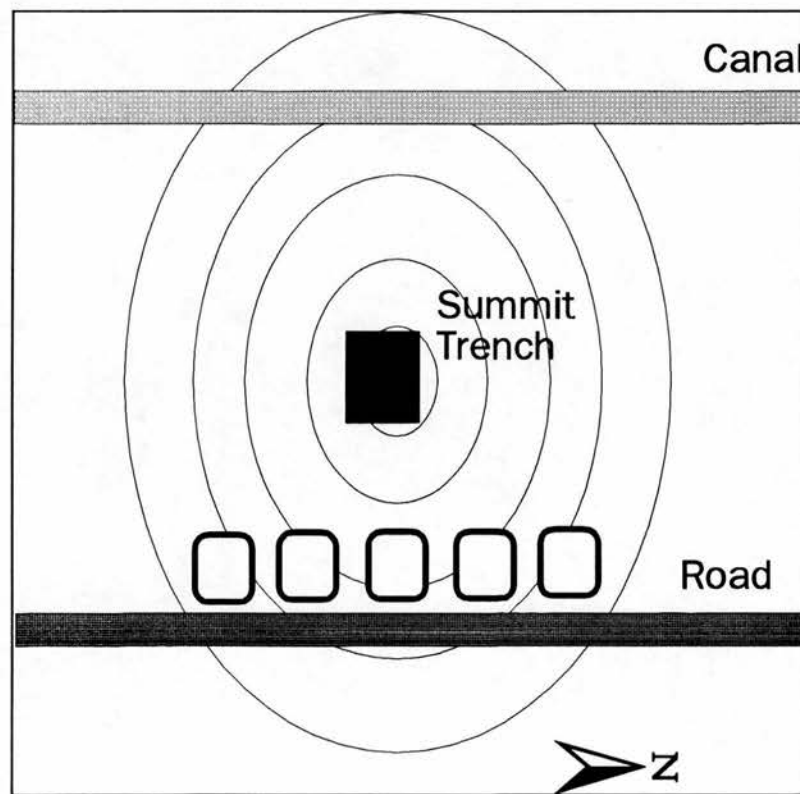


Fig. A.3: Schematic plan of collection areas on NJP 72

The pottery from these areas can be classified according to *a priori* criteria based on the material from other sites, particularly Sabi Abyad, into very general groups. The basic divisions used were Hassuna III, Halaf I and Halaf II. Any Halaf pottery which did not

appear to fall definitively into either of the two latter groups was classified as 'other Halaf' to enhance the integrity of the groupings. The graph in fig. A.4 illustrates a very marked pattern amongst the collection groups despite the relatively small sample. The material from the eastern edge of the site is almost entirely Hassuna III, from the centre, Halaf I, and from the west, Halaf II. This suggests a basic sequence of the site and also that the focus of the site moves gradually from east to west. These figures are probably slightly deceptive in that the lower 4 m of the mound are not represented which may be guessed consist of Hassuna III and some Halaf I material. Equally there is likely to have been some erosion from the top of the mound which will have obscured the presence of any late Halaf occupation there may have been.

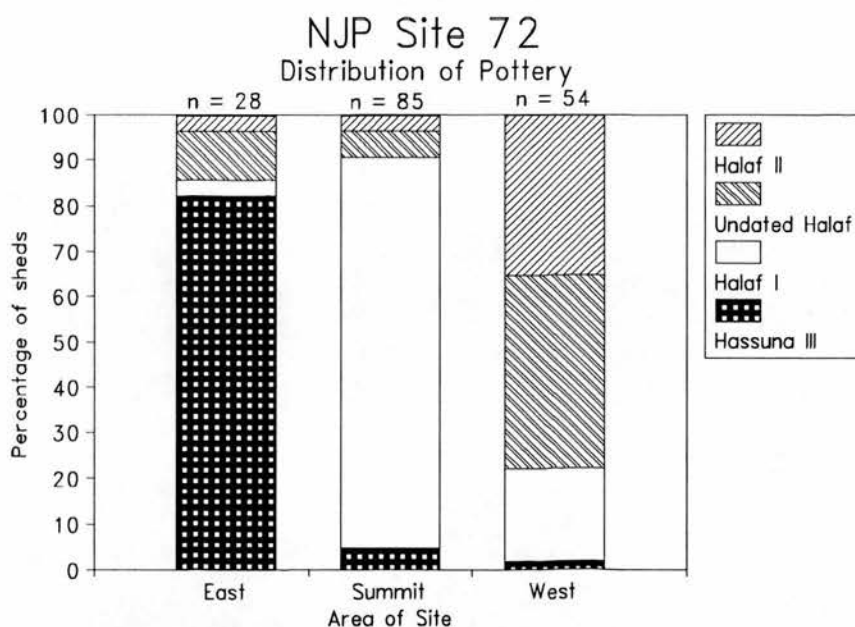


Fig. A.4: Distribution of general pottery types at NJP 72

As well as being distinct from the eastern and western areas, the material from the top of the tell is very consistent. The material from the sections produced no demonstrable change. Much of the material in the spoil from the trenches lay in discrete dumps, each of which may be presumed to have had some internal relationship, probably having been dumped at one time and quite plausibly deriving from a single, albeit arbitrary, horizontal area. There was, again, no apparent distinction between the groups of material from the different dumps. Therefore, it is proposed that the material from this central area can be used as a single entity which is conflated from an occupational sequence in which no major ceramic developments took place. It should not, however, be forgotten that it is a conflation and that there may well be minor developments obscured within it which we cannot observe. For finer detail we must await a better sample from this or another site.

Appendix B

Pottery Statistics

Table B.1. Membership of motif groups

Description	Group	Motifs
Zig-zags	5001	4, 19, 30, 31, 37, 42, 45, 48, 63, 64, 70, 76, 79, 86, 88, 105, 109, 121, 133, 141, 148, 154, 169, 173, 181, 183, 184, 187, 193, 207, 227, 229, 230, 240, 242, 247, 248, 256, 257, 259, 264, 265, 267, 269, 281, 294, 296, 324, 332, 335, 384, 391, 401, 406, 407, 418, 419, 428, 432, 447, 453, 456, 458, 462, 463, 471, 475, 509, 529, 533, 534, 535, 536, 545, 546, 551, 552, 553, 564, 565, 567
Triangles	5002	1, 20, 22, 71, 73, 89, 115, 117, 127, 136, 140, 141, 147, 148, 150, 160, 191, 194, 218, 219, 224, 225, 238, 239, 241, 258, 259, 261, 265, 284, 287, 291, 300, 381, 404, 405, 411, 486, 541, 543, 557, 567, 578
Lozenges	5003	6, 27, 56, 62, 65, 66, 104, 131, 135, 139, 171, 192, 204, 208, 218, 234, 243, 260, 298, 324, 329, 334, 343, 344, 349, 354, 355, 363, 367, 375, 387, 420, 459, 463, 479, 487, 490, 493, 494, 503, 513, 514, 522, 554, 557, 568, 576, 586, 587, 589, 595, 597, 615, 618, 619, 621
Links	5004	15, 23, 52, 74, 78, 111, 145, 212, 351, 370, 495, 502, 504, 515, 521, 532, 575, 594, 606, 607, 608, 609, 611, 612
Cross-hatch	5005	7, 11, 20, 26, 46, 50, 51, 56, 73, 98, 115, 117, 120, 126, 131, 135, 149, 166, 171, 238, 239, 258, 263, 265, 280, 304, 336, 355, 359, 360, 368, 372, 373, 374, 381, 392, 415, 418, 428, 443, 453, 459, 460, 467, 493, 505, 506, 509, 516, 519, 546, 549, 552, 553, 554, 557, 560, 566, 576, 578, 584, 586, 611
Chevrons	5006	16, 32, 36, 39, 43, 55, 71, 75, 80, 103, 152, 167, 172, 173, 178, 182, 201, 215, 226, 244, 245, 276, 283, 286, 303, 330, 331, 353, 362, 378, 379, 409, 422, 426, 466, 476, 485, 518, 559, 566, 591, 592, 598, 599
Waves	5007	9, 17, 18, 21, 57, 84, 85, 87, 92, 99, 100, 101, 116, 153, 170, 188, 197, 321, 341, 425, 430, 439, 451, 461, 472, 510, 527, 539, 544, 560
Swags	5008	5, 40, 41, 44, 59, 97, 106, 107, 108, 114, 118, 119, 123, 125, 132, 138, 144, 151, 153, 169, 177, 185, 195, 196, 198, 203, 206, 213, 319, 323, 340, 364, 390, 465, 492, 497, 499, 547, 588, 613, 614
Dancers	5009	285, 295, 300, 301, 322, 441, 442, 446, 461, 472, 486, 488, 541, 583, 620, 623
Bars	5010	54, 67, 96, 176, 186, 273, 400, 450, 474, 582
Checks	5011	7, 58, 205, 236, 304, 307, 309, 310, 337, 371, 374, 380, 386, 403, 517, 523, 524, 525, 530, 584
Negative	5012	52, 107, 111, 113, 142, 143, 152, 260, 276, 321, 339, 349, 361, 421, 479, 510, 536, 604
Steps	5013	228, 232, 263, 266, 270, 275, 277, 278, 290, 413, 435, 464, 470, 537, 548, 550, 556, 562, 563
Multi-line	5014	214, 230, 237, 240, 249, 250, 251, 254, 256, 257, 262, 274, 282, 289, 394, 432, 447, 462, 551, 564
Incised	5015	80, 81, 164, 215, 220, 221, 222, 223, 224, 225, 226, 227, 244, 245, 248, 253, 261, 262, 268, 280, 281, 282, 283, 292, 293, 297, 320, 359, 360, 407, 416, 423, 427, 433, 434, 438, 452, 457, 473, 478, 533, 534, 535, 539, 570
Trees/flowers	5016	308, 318, 376, 381, 516
Relief	5017	356, 357
Bukrania	5018	299, 325, 326, 327, 347, 348, 498, 590, 593, 601, 617

Table B.2. Summary of ware data for the Proto-Hassuna

	Coarse	Medium	Burnished
Tell Sotto	93.2%	6.8%	0.05%
Kultepe	83.4%	16.5%	0.03%
Tell Kashkashok	95%		5%
Kharabeh Shattani	70%	30%	
Tell es-Sawwan	87.2%	13.8%	
Matarrah	70%	30%	

Table B.3. Yarim Tepe I: Frequency of decoration on vessels

Level	Type III	Type IV
8	93.5%	98.5%
9	87.1%	39.6%
10	47.4%	58.5%
11	21.6%	39.8%
12	37%	31.5%
Pits	0	120%!

Table B.4. Yarim Tepe I: Vessel forms by level (percentages)

















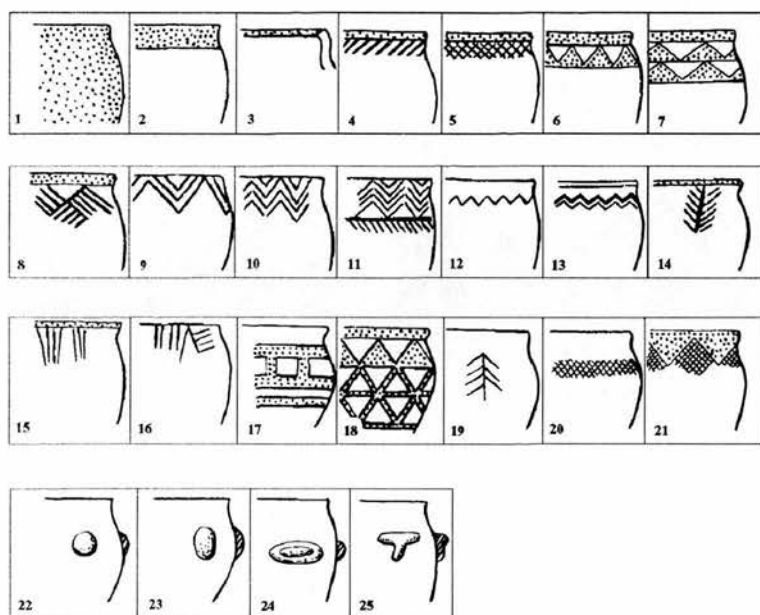
			Level					
Form			8th	9th	10th	11th	12th	Pits
Type I			3.2	3.8	4.5	12.5	21.5	43.5
Type II	var.1		2.8	1.6	4.5	3.5	3.3	2.2
	var.2		1.9	3.3	1.2	0.3	0.9	
	var.3			6.0	4.7	0.6		
	var.4		11.6	7.7	9.4	9.6	7.2	4.3
Type III	var.1			1.6	3.7	4.3	4.6	10.8
	var.2		0.5	7.6	3.7	1.8	1.5	4.4
	var.3		0.9	1.6	3.1	0.3	5.7	2.2
	var.4		23.2	4.9	1.9	4.4	3.0	
	var.5		10.6	1.1	0.7		0.9	
	var.6		0.5		0.5		0.2	
Type IV	var.1		6.5	14.8	11.3	5.5	2.8	2.2
	var.2		24.1	35.2	41.5	48.5	36.5	8.7
	var.3				0.5	0.6	2.6	
	var.4				0.2			
	var.5				0.2		1.7	
Type V	var.1	Tray	11.6	8.2	6.8	7.0	6.5	19.6
	var.2a	Husking tray - Ridged	2.8	2.2	0.5			
	var.2b	Husking tray - Punctated			1.2	1.2	1.1	2.2
Sample			216	182	424	344	460	46

Table B.5. Yarim Tepe I: Frequency of motifs on vessels of Type IV, var.1 & 2 (percentages)

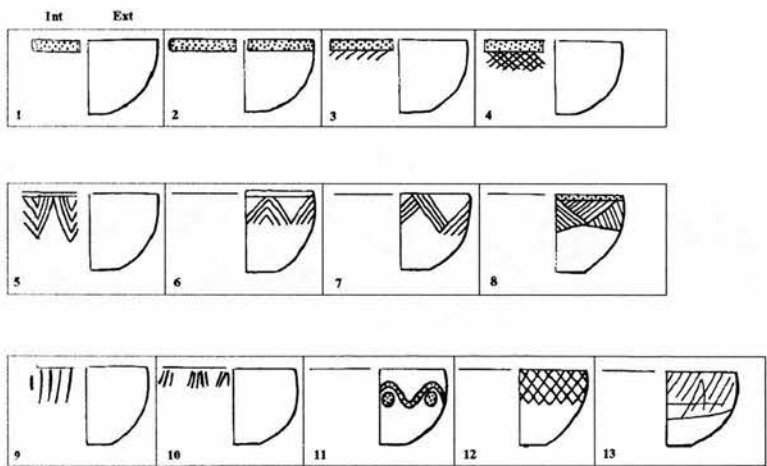
Yarim Tepe Motifs



Motif	Level					
	8th	9th	10th	11th	12th	Pits
1	10.77		3.82		7.02	
2	29.23	5.56	73.28	86.49	75.44	100
3			2.29	2.70	1.75	
4	6.15	13.89	0.76	2.70	1.75	
5	16.92	30.56	6.87	2.70	5.26	
6	6.15	8.33	3.82	1.35	1.75	
7	4.62	2.78			1.75	
8	7.69	5.56	4.58			
9	4.62		0.76	1.35		
10	3.08	2.78	0.76			
11	1.54		0.76			
12		2.78				
13		13.89	0.76			
14				1.35	1.75	
15	1.54	2.78			3.51	
16	1.54			1.35		
17	6.15	11.11	0.76			
18			0.76			
19		5.56				
20	1.54		1.53			
21			0.76			
22				1.35	3.51	
23				2.70		
24				1.35	3.51	
25					1.75	
No. Motifs	14	12	15	11	12	1
Sample	65	36	131	74	57	6

Table B.6. Yarim Tepe I: Frequency of motifs on vessels of Type III (percentages)

Yarim Tepe Motifs



Motifs	Level					Pits
	8th	9th	10th	11th	12th	
1	15.3	37.0	48.1	50.0	74.1	
2	43.1	29.6	37.0	37.5	14.8	
3	12.5	3.7	3.7	12.5		
4	15.3	7.4	3.7		7.4	
5	2.8	3.7				
6	2.8	7.4				
7	2.8	3.7				
8	2.8	3.7				
9	1.4				3.7	
10			3.7			
11			3.7			
12	1.4					
13		3.7				
No. Motifs	10	9	6	3	4	0
Sample	72	27	27	8	27	0

Table B.7. Tell Hassuna: Percentages of decoration types

Counts of pottery from Hassuna (1944 season) Lloyd and Safar, 1948, fig.5

Level	Ubaid	Halaf	Painted	Incised	Ptd & Inc	Archaic	Burnish
XII	27.78	72.22					
XI	19.61	76.47		1.96	1.96		
X		98.15	1.85				
IX		100.00					
VIII		95.47	1.81	1.81	0.91		
VII		93.51	5.34	0.38	0.76		
VI	0.96	8.28	30.73	46.02	14.01		
V			16.64	69.51	13.85		
IV		0.05	18.41	71.51	10.02		
III			15.82	77.69	2.43	4.06	
II			2.04	86.34	0.44	10.65	0.53
IC			0.39	82.65	0.86	12.14	3.97
IB				85.56		2.67	11.78

Table B.8. Correlation of ceramic wares between Tell Hassuna and Yarim Tepe I

Pottery styles	Hassuna levels	Yarim Tepe levels
Proto-Hassuna	Ia	Pits 12 11
Proto-Hassuna/Archaic pntd		10
Archaic pntd		9 8
Archaic pntd & Standard Inc	Ib Ic	
Standard pntd & Archaic pntd	II	7?
Standard pntd	III	6?
Standard pntd & Standard pntd/inc & Samarran	IV V VI	5-1

Table B.9. Tell Hassuna Ranked Interior Motifs

Total sample = 44

Rank	Motif	Count	Cumulative	Percent
1	243/233	16	16	36.4
2	255/246	6	22	13.6
3	272/429	5	27	11.4
4	1	4	31	9.1
5	2/3	2	33	4.5
% of motifs represented				75.0

Table B.10. Tell Hassuna Ranked Exterior Motifs

Total sample = 255

Rank	Motif	Count	Cumulative	Percent
1	91	34	34	13.3
2	80/Inc	30	64	11.8
3	2/3	17	81	6.7
4	237	9	90	3.5
5	274	8	98	3.1
6	215/Inc	8	106	3.1
7	147	8	114	3.1
8	32	6	120	2.4
9	239/238	5	125	2.0
10	257	5	130	2.0
11	82/83	4	134	1.6
12	485	4	138	1.6
13	224/225/Inc	4	142	1.6
14	90/235	4	146	1.6
15	240	4	150	1.6
16	230	4	154	1.6
17	256	4	158	1.6
18	283/Inc	4	162	1.6
19	260	4	166	1.6
20	214	3	169	1.2
21	86	3	172	1.2
% of motifs represented				67.5

Table B.11. Tell Hassuna Grouped Exterior Motifs

	Group	Count	Percent
Zig-zag	5001	36	14.1
Triangles	5002	23	9.0
Lozenge	5003	10	3.9
Crosshatch	5005	58	22.7
Chevrons	5006	54	21.2
Bars	5010	3	1.2
Checks	5011	1	0.4
Negative	5012	4	1.6
Steps	5013	4	1.6
Multi-line	5014	58	22.7
Total		255	114.9

Table B.12. Tell Hassuna Grouped Interior Motifs

	Group	Count	Percent
Zig-zag	5001	1	2.3
Triangles	5002	5	11.4
Lozenge	5003	15	34.1
Links	5004	1	2.3
Crosshatch	5005	3	6.8
Swags	5008	1	2.3
Steps	5013	1	2.3
Total		44	75.0

Table B.13. Khirbet Garsour Ranked Interior Motifs

Total sample = 84

Rank	Motif	Count	Cumulative	Percent
1	2/3	23	23	27.4
2	429	11	34	13.1
3	44	9	43	10.7
4	35	5	48	6.0
5	441	3	51	3.6
6	91	3	54	3.6
7	431	2	56	2.4
8	460	2	58	2.4
9	151	2	60	2.4
10	4	2	62	2.4
11	72	2	64	2.4
% of motifs represented				76.2

Table B.14. Khirbet Garsour Ranked Exterior Motifs

Total sample = 470

Rank	Motif	Count	Cumulative	Percent
1	2/3	85	85	18.1
2	91	72	157	15.3
3	422/423	44	201	9.4
4	176	30	231	6.4
5	233	22	253	4.7
6	82/83	15	268	3.2
7	26	15	283	3.2
8	247	14	297	3.0
9	80/Inc	13	310	2.8
10	268/Inc	9	319	1.9
11	32/476	8	327	1.7
12	430/439	7	334	1.5
13	35	7	341	1.5
14	262/237	5	346	1.1
15	98/443/460	5	351	1.1
16	266/270/464/470	5	356	1.1
17	424	5	361	1.1
18	126	5	366	1.1
19	150/160	4	370	0.9
20	1	4	374	0.9
21	283/Inc	4	378	0.9
22	292	4	382	0.9
% of motifs represented				81.3

Table B.15. Khirbet Garsour Grouped Interior Motifs

	Group	Count	Percent
Zig-zags	5001	7	6.60
Crosshatch	5005	3	2.83
Ripples	5007	1	0.94
Swags	5008	12	11.32
Dancers	5009	6	5.66
Steps	5013	1	0.94
Multi-line	5014	2	1.89
Total		106	50.00

Table B.16. Khirbet Garsour Grouped Exterior Motifs

	Group	Count	Percent
Zig-zags	5001	31	6.07
Triangles	5002	11	2.15
Lozenges	5003	6	1.17
Links	5004	1	0.20
Crosshatch	5005	37	7.24
Chevrons	5006	75	14.68
Ripples	5007	17	3.33
Swags	5008	5	0.98
Bars	5010	32	6.26
Checks	5011	4	0.78
Negative	5012	1	0.20
Steps	5013	8	1.57
Multi-line	5014	14	2.74
Total		511	56.56

Table B.17. Khirbet Garsour Form Frequencies

Sample = 222





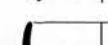
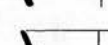





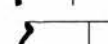



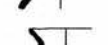

Form		Counts	Percentages
A1		32	14.4
A2		28	12.6
A3		59	26.6
A4		12	5.4
A5		16	7.2
A6		3	1.4
A7		6	2.7
A8		8	3.6
A9		2	0.9
A10		1	0.5
B1		5	2.3
B2		5	2.3
B3		5	2.3
B4		7	3.2
C1		16	7.2
C2		9	4.1
C3		3	1.4
D1	Husking Tray	3	1.4
D2	Plain Tray	2	0.9

Table B.18. Tell es-Sawwan Ranked Interior Motifs

Total sample = 211

Rank	Motif	Count	Cumulative	Percent
1	543	28	28	13.3
2	541	21	49	10.0
3	272/333/429	14	63	6.6
4	91	13	76	6.2
5	82/83	13	89	6.2
6	2	10	99	4.7
7	36	10	109	4.7
8	435/413	9	118	4.3
9	35	9	127	4.3
10	273	8	135	3.8
11	544/558	7	142	3.3
12	1	7	149	3.3
13	37/335	6	155	2.8
14	270/470	3	158	1.4
15	486	3	161	1.4
16	65	3	164	1.4
% of motifs represented				77.7

Table B.19. Tell es-Sawwan Ranked Exterior Motifs

Total sample = 518

Rank	Motif	Count	Cumulative	Percent
1	91	73	73	14.1
2	2/3	55	128	10.6
3	82/83	37	165	7.1
4	273	26	191	5.0
5	32/476	16	207	3.1
6	435/413	13	220	2.5
7	270/470	11	231	2.1
8	466	11	242	2.1
9	415	10	252	1.9
10	423/268/Inc	9	261	1.7
11	176	9	270	1.7
12	427/Inc	9	279	1.7
13	509/418	8	287	1.5
14	282/Inc	8	295	1.5
15	507	8	303	1.5
16	274	8	311	1.5
17	544/558	7	318	1.4
18	289	7	325	1.4
19	1	7	332	1.4
20	65	6	338	1.2
21	280/Inc	6	344	1.2
% of motifs represented				66.4

Table B.20. Tell es-Sawwan Grouped Interior Motifs

Percentages

	Group	DITCH	II	IIIA	IIIB	IV	V
Zig-zag	5001		33.33		7.59	4.94	13.64
Triangles	5002	25.00	33.33	30.30	16.46	29.63	27.27
Lozenge	5003			3.03	6.33		2.27
Crosshatch	5005	25.00		3.03	2.53		4.55
Chevron	5006	25.00		6.06	5.06	7.41	6.82
Ripple	5007			3.03	5.06	3.70	
Swags	5008			3.03	1.27	1.23	4.55
Dancers	5009			15.15	6.33	12.35	11.36
Bars	5010			3.03	8.86		
Negative	5012			3.03	2.53		
Steps	5013			6.06	5.06	4.94	11.36
Total		4	3	33	79	81	44

Table B.21. Tell es-Sawwan Grouped Exterior Motifs

Percentages

	Group	DITCH	II	IIIA	IIIB	IV	V
Zig-zag	5001		11.11	11.24	10.76	9.52	12.38
Triangles	5002		11.11	1.12	3.80	3.33	4.76
Lozenge	5003	10.00	11.11	2.25	2.53	5.24	3.81
Links	5004				0.63		0.95
Crosshatch	5005	40.00	22.22	4.49	8.23	10.95	18.10
Chevrons	5006			8.99	9.49	4.76	3.81
Ripples	5007	20.00		1.12	3.16	3.81	4.76
Swags	5008					0.48	0.95
Dancers	5009			1.12		1.43	
Bars	5010			11.24	6.33	8.10	2.86
Negative	5012	10.00		1.12	3.16		
Steps	5013			6.74	5.70	8.10	7.62
Multi-line	5014			13.48	5.70	4.76	0.95
Total		10.00	9.00	89.00	158.00	210.00	105.00

Table B.22. Tell es-Sawwan: General Wares

General distribution of types (raw counts)

Level	Type						Totals
	Coarse A	Coarse B	Fine A	Fine Inc	Fine P&I	Fine ptd	
II	280	74	11	19	.	22	406
IIIA	66	48	164	47	13	99	437
IIIB	99	144	545	40	30	255	1113
IV	123	317	280	46	38	320	1124
V	23	103	69	14	6	89	304
Total	591	686	1069	166	87	785	3384

General distribution of types (percentages)

Level	Type						Totals
	Coarse A	Coarse B	Fine A	Fine Inc	Fine P&I	Fine ptd	
II	69.0	18.2	2.7	4.7	0.0	5.4	100
IIIA	15.1	11.0	37.5	10.8	3.0	22.7	100
IIIB	8.9	12.9	49.0	3.6	2.7	22.9	100
IV	10.9	28.2	24.9	4.1	3.4	28.5	100
V	7.6	33.9	22.7	4.6	2.0	29.3	100

Table B.23. Tell es-Sawwan: General shapes by phase

Raw Counts (percentages)

	Bowl	Jar	Pot	?	Total
Ditch	1 (33%)	1 (33%)	1 (33%)		3
II	2 (29%)	4 (57%)	1 (14%)		7
III	1 (100%)				1
IIIA	12 (29%)	22 (52%)	7 (17%)	1	41
IIIB	32 (49%)	18 (28%)	13 (20%)	2	63
IV	36 (51%)	21 (30%)	13 (18%)	1	71
V	17 (52%)	6 (18%)	7 (21%)	3	33
Totals	101	72	42	7	219

Table B.24. Tell es-Sawwan: Form types by phase

Raw counts

Form		Ditch	II	III	IIIA	IIIB	IV	V
A1					2	4	2	3
A2					2		2	1
A3			1		1	8	3	
A4			1	1	2	8	18	3
A5						2	2	1
A6						1		1
A7					4	4	2	4
A8								2
A9						1	1	
A10						1		
A14						1	2	1
B2					3	2		
B3					1	2	2	1
B4			2		2	4		3
C1		1			5	3	2	
C2						1	5	2
C3						4		
C4							3	
Misc Jars			1			1	2	
Total		1	5	1	22	47	46	22

Table B.25. Tell es-Sawwan: Form types for levels IIIA-V
Percentages

Type		IIIA	IIIB	IV	V
A1		9.09	8.51	4.35	13.64
A2		9.09		4.35	4.55
A3		4.55	17.02	6.52	
A4		9.09	17.02	39.13	13.64
A5			4.26	4.35	4.55
A6			2.13		4.55
A7		18.18	8.51	4.35	18.18
A8					9.09
A9			2.13	2.17	
A10			2.13		
A14			2.13	4.35	4.55
B2		13.64	4.26		
B3		4.55	4.26	4.35	4.55
B4		9.09	8.51		13.64
C1		22.73	6.38	4.35	
C2			2.13	10.87	9.09
C3			8.51		
C4				6.52	
Misc Jars			2.13	4.35	

Table B.26. Baghouz Ranked Interior Motifs
Total sample = 69

Rank	Motif	Count	Cumulative	Percent
1	272/429	11	11	15.9
2	35	9	20	13.0
3	2/3	7	27	10.1
4	543	5	32	7.2
5	541	5	37	7.2
6	441/442	4	41	5.8
7	1	4	45	5.8
8	82/83	3	48	4.3
9	91	3	51	4.3
10	273	2	53	2.9
11	556	2	55	2.9
12	26	2	57	2.9
13	4	2	59	2.9
% of motifs represented				85.5

Table B.27. Baghouz Ranked Exterior Motifs

Total sample = 298

Rank	Motif	Count	Cumulative	Percent
1	91	36	36	12.1
2	2	29	65	9.7
3	273	24	89	8.1
4	82/83	22	111	7.4
5	176	21	132	7.0
6	26	16	148	5.4
7	51	11	159	3.7
8	32/476	8	167	2.7
9	289	8	175	2.7
10	509/428	6	181	2.0
11	556	6	187	2.0
12	269/Imp	6	193	2.0
13	274	6	199	2.0
14	270/266/470	5	204	1.7
15	462/447	5	209	1.7
16	413/435	5	214	1.7
17	264	5	219	1.7
18	512	5	224	1.7
19	552/546	5	229	1.7
20	30	5	234	1.7
% of motifs represented				78.5

Table B.28. Baghouz Grouped Interior Motifs

	Group	Count	Percent
Zig-zag	5001	4	5.8
Triangles	5002	15	21.7
Crosshatch	5005	3	4.3
Ripples	5007	1	1.4
Dancers	5009	10	14.5
Bars	5010	3	4.3
Steps	5013	4	5.8
Total		69	58.0

Table B.29. Baghouz Grouped Exterior Motifs

	Group	Count	Percent
Zig-zags	5001	46	15.4
Triangles	5002	2	0.7
Lozenges	5003	4	1.3
Links	5004	1	0.3
Crosshatch	5005	50	16.8
Chevrons	5006	17	5.7
Swags	5008	1	0.3
Bars	5010	45	15.1
Checks	5011	2	0.7
Steps	5013	21	7.0
Multi-line	5014	36	12.1
Total		298	78.5

Table B.30. Tell Shimshara Ranked Interior Motifs

Total sample = 35

Rank	Motif	Count	Cumulative	Percent
1	272	12	12	34.3
2	26	9	21	25.7
3	422	5	26	14.3
4	35	3	29	8.6
% of motifs represented				82.9

Table B.31. Tell Shimshara Ranked Exterior Motifs

Total sample = 448

Rank	Motif	Count	Cumulative	Percent
1	32	55	55	12.3
2	268/292/423/inc	46	101	10.3
3	256	36	137	8.0
4	80/inc	35	172	7.8
5	273	33	205	7.4
6	176	25	230	5.6
7	274	24	254	5.4
8	35	19	273	4.2
9	435	17	290	3.8
10	264	15	305	3.3
11	282/inc	14	319	3.1
12	280/inc	14	333	3.1
13	289	9	342	2.0
14	257	8	350	1.8
15	229	7	357	1.6
16	91	7	364	1.6
17	37	7	371	1.6
18	126	6	377	1.3
19	296	6	383	1.3
20	237	6	389	1.3
% of motifs represented				86.8

Table B.32. Tell Shimshara Grouped Interior Motifs

Percentages

	Group	9	10	11	12	13	?	Total
Zig-zag	5001				25.00			2.86
Triangles	5002		12.50					2.86
Crosshatch	5005			40.00		75.00	25.00	28.57
Chevrons	5006	50.00	25.00			25.00	12.50	17.14
Dancers	5009			20.00				2.86
Total		2	8	5	4	8	8	35

Table B.33. Tell Shimshara Grouped Exterior Motifs

Percentages

	Group	9	10	11	12	13	?	Total
Zig-zags	5001	13.33	17.50	5.00	25.23	26.09	20.83	20.22
Triangles	5002		2.50		2.70	1.45		1.33
Crosshatch	5005	6.67	8.75	15.00	4.50	4.35	3.33	6.00
Chevrons	5006	26.67	16.25	15.00	20.72	24.64	25.83	21.78
Ripples	5007			2.50	0.90	5.80	1.67	1.78
Swags	5008			2.50	0.90	1.45		0.67
Bars	5010	20.00	16.25	12.50	13.51	7.25	11.67	12.89
Checks	5011			2.50				0.22
Negative	5012			2.50				0.22
Steps	5013	10.00	5.00	12.50	5.41		7.50	6.00
Multi-line	5014	10.00	26.25	22.50	14.41	31.88	25.83	22.67
Totals		30	80	40	111	69	120	450

Table B.34. Tell Shimshara: Form Types

Raw Counts

	Level						
	13	12	11	10	9	Unstrat	Total
A3	28	19	14	19	6	11	97
A4/B1/A1	5	5	3	11		3	27
A4/A5?	1		1	2	2	4	10
A9	2	1				1	4
A9/A10				1			1
B1	1		1	1	1	1	5
B1/C1		12	1	5	2	5	25
B1/B4	2	4	3	2	1		12
B2/B3		1		1		4	6
C1	16	9	9	12	3	12	61
C1 short	1	8	5	11	3	14	42
C1/C2	3	17	6	11	4	14	55
C1/C2/B4	4	3	3	7	2		19
D1	4	4	4			5	17
D2	12	17	10	17	5	3	64
Cup					1		1
Tripod	2		1	2			5
Pedestal	3	1	1	2		2	9
Total	105	117	67	117	32	84	522
Unknown	242	144	93	138	16	64	697

Table B.35. Tell Shimshara: General Vessel Types

Raw Counts

	13	12	11	10	9	Unstrat
Tray	12	17	10	17	5	3
Husking	4	4	4			5
Hemi-bowl	28	19	14	19	6	11
Carinated	11	10	5	4		5
Pots	3	11	4	6	3	7
Jars	24	43	24	44	13	43
Total	82	104	61	90	27	74

Percentages

	13	12	11	10	9	Unstrat
Tray	14.63	16.35	16.39	18.89	18.52	4.05
Husking	4.88	3.85	6.56			6.76
Hemi-bowl	34.15	18.27	22.95	21.11	22.22	14.86
Carinated	13.41	9.62	8.20	4.44		6.76
Pots	3.66	10.58	6.56	6.67	11.11	9.46
Jars	29.27	41.35	39.34	48.89	48.15	58.11

Table B.36. Tell Shimshara Decoration types

Raw Counts

	13	12	11	10	9	Unstrat
Painted	65	83	60	98	30	132
Incised	4	8	6	11	6	16
Pt + Inc	10	17	8	14	6	20
Archaic	28	14	4	2	4	23
Unpainted	221	82	99	149	14	42
Total	328	204	177	274	60	233

Percentages

	13	12	11	10	9	Unstrat
Painted	19.82	40.69	33.90	35.77	50.00	56.65
Incised	1.22	3.92	3.39	4.01	10.00	6.87
Pt + Inc	3.05	8.33	4.52	5.11	10.00	8.58
Archaic	8.54	6.86	2.26	0.73	6.67	9.87
Unpainted	67.38	40.20	55.93	54.38	23.33	18.03

Table B.37. Tell Matarrah Ranked Interior Motifs

Total sample = 16

Rank	Motif	Count	Cumulative	Percent
1	1	3	3	18.8
2	243	3	6	18.8
3	91	2	8	12.5
4	456	2	10	12.5
% of motifs represented				62.5

Table B.38. Tell Matarrah Ranked Exterior Motifs

Total sample = 102

Rank	Motif	Count	Cumulative	Percent
1	91	16	16	15.7
2	37	9	25	8.8
3	282/inc	8	33	7.8
4	273	8	41	7.8
5	80/inc	7	48	6.9
6	257	7	55	6.9
7	229	5	60	4.9
8	32/476	4	64	3.9
9	1	4	68	3.9
10	254	3	71	2.9
11	555	3	74	2.9
12	435	3	77	2.9
13	256	2	79	2.0
14	20	2	81	2.0
15	232	2	83	2.0
16	289	2	85	2.0
17	274	2	87	2.0
% of motifs represented				85.3

Table B.39. Tell Matarrah Grouped Interior Motifs

	Group	Number	Percent
Zig-zag	5001	3	14.29
Triangles	5002	3	14.29
Lozenge	5003	3	14.29
Ripples	5007	1	4.76
Dancers	5009	1	4.76
Total		21	52.38

Note: Total is total number of motifs not total of this and other tables

Table B.40. Tell Matarrah Grouped Exterior Motifs

	Group	Number	Percent
Zig-zag	5001	24	18.05
Triangles	5002	6	4.51
Lozenges	5003	3	2.26
Crosshatch	5005	14	10.53
Chevrons	5006	14	10.53
Bars	5010	9	6.77
Checks	5011	1	0.75
Negative	5012	1	0.75
Steps	5013	6	4.51
Multi-line	5014	30	22.56
Total		133	90.23

Table B.41. Tell Sabi Abyad Ranked Interior Motifs

Total sample = 129

Rank	Motif	Count	Cumulative	Percent
1	2/3	51	51	39.5
2	44	18	69	14.0
3	582	18	87	14.0
4	91	13	100	10.1
5	35	7	107	5.4
6	583	7	114	5.4
7	541/300	5	119	3.9
8	195	4	123	3.1
% of motifs represented				95.3

Table B.42. Tell Sabi Abyad Ranked Exterior Motifs

Total sample = 435

Rank	Motif	Count	Cumulative	Percent
1	2/3	95	95	21.8
2	460/506/443	45	140	10.3
3	91	33	173	7.6
4	270/266/470	17	190	3.9
5	171/493	17	207	3.9
6	26	16	223	3.7
7	575/469	15	238	3.4
8	233	12	250	2.8
9	51	11	261	2.5
10	47	11	272	2.5
11	83/82	9	281	2.1
12	30	7	288	1.6
13	559	6	294	1.4
14	43	6	300	1.4
15	72	6	306	1.4
16	65	6	312	1.4
17	256	6	318	1.4
18	247	4	322	0.9
19	588	4	326	0.9
% of motifs represented				74.9

Table B.43. Tell Sabi Abyad Grouped Interior motifs

	Group	Number	Percent
Zig-zag	5001	1	0.76
Triangles	5002	5	3.79
Swags	5008	24	18.18
Dancers	5009	13	9.85
Bars	5010	18	13.64
Total		132	45.45

Note: Total is all interior motifs

Table B.44. Tell Sabi Abyad Grouped Exterior Motifs

	Group	Number	Percent
Zig-zags	5001	24	6.40
Triangles	5002	6	1.60
Lozenges	5003	35	9.33
Links	5004	13	3.47
Crosshatch	5005	104	27.73
Chevrons	5006	11	2.93
Ripples	5007	5	1.33
Swags	5008	12	3.20
Bars	5010	3	0.80
Checks	5011	5	1.33
Negative	5012	4	1.07
Steps	5013	17	4.53
Multi-line	5014	7	1.87
Total		375	65.87

Table B.45. NJP 72 Early Halaf Ranked Interior Motifs

Total sample = 47

Rank	Motif	Count	Cumulative	Percent
1	2	21	21	44.7
2	44	12	33	25.5
3	451	7	40	14.9
4	484	2	42	4.3
5	54	2	44	4.3
% of motifs represented				93.6

Table B.46. NJP 72 Early Halaf Ranked Exterior Motifs

Total sample = 93

Rank	Motif	Count	Cumulative	Percent
1	2/3	22	22	23.7
2	460/506	12	34	12.9
3	91	7	41	7.5
4	176	6	47	6.5
5	233	5	52	5.4
6	51/467	4	56	4.3
7	126	4	60	4.3
8	8283	3	63	3.2
9	26	3	66	3.2
10	72	2	68	2.2
11	134	2	70	2.2
12	509	2	72	2.2
13	362	2	74	2.2
% of motifs represented				79.6

Table B.47. NJP 72 Hassuna Ranked Exterior Motifs

Total sample = 21

Rank	Motif	Count	Cumulative
1	247	6	6
2	176	4	10
3	2	2	12
4	91	2	14
5	431	2	16

Table B.48. NJP 72 Grouped Interior Motifs

	Group	Count	Percent
Ripples	5007	8	16.33
Swags	5008	12	24.49
Bars	5010	2	4.08
Total		49	48.98

Table B.49. NJP 72 Grouped Exterior Motifs

	Group	Count	Percent
Zig-zag	5001	3	2.91
Triangles	5002	2	1.94
Lozenges	5003	2	1.94
Crosshatch	5005	29	28.16
Chevrons	5006	3	2.91
Ripples	5007	1	0.97
Swags	5008	1	0.97
Bars	5010	7	6.80
Checks	5011	3	2.91
Total		103	51.46

Table B.50. NJP 119 Ranked Interior Motifs

Total sample = 106

Rank	Motif	Count	Cumulative	Percent
1	2/3	26	26	24.5
2	44	24	50	22.6
3	129	20	70	18.9
4	91	10	80	9.4
5	6	6	86	5.7
6	171	3	89	2.8
7	343	2	91	1.9
8	1	2	93	1.9
% of motifs represented				87.7

Table B.51. NJP 119 Ranked Exterior Motifs

Total sample = 98

Rank	Motif	Count	Cumulative	Percent
1	2/3	52	52	53.1
2	91	9	61	9.2
3	44	6	67	6.1
4	6	3	70	3.1
5	493	3	73	3.1
6	172	3	76	3.1
7	47	3	79	3.1
8	31	2	81	2.0
9	338	2	83	2.0
% of motifs represented				84.7

Table B.52. NJP 119 Grouped Interior Motifs

	Group	Count	Percent
Zig-zags	5001	1	0.9
Triangles	5002	2	1.8
Lozenges	5003	13	11.9
Links	5004	1	0.9
Cross-hatch	5005	7	6.4
Chevrons	5006	1	0.9
Swags	5008	25	22.9
Bars	5010	1	0.9
Checks	5011	1	0.9
Incised	5015	2	1.8
Bukrania	5018	1	0.9
Total		109	48.98

Table B.53. NJP 119 Grouped Exterior Motifs

	Group	Count	Percent
Zigzags	5001	2	2.02
Lozenges	5003	10	10.10
Links	5004	3	3.03
Cross-hatch	5005	5	5.05
Chevrons	5006	5	5.05
Swags	5008	8	8.08
Total		99	48.98

Table B.54. Kharabeh Shattani Ranked Interior Motifs

Total sample = 100

Rank	Motif	Count	Cumulative	Percent
1	2/3	50	50	50.0
2	44	18	68	18.0
3	91	9	77	9.0
4	58	5	82	5.0
5	185	3	85	3.0
6	35	3	88	3.0
7	23	2	90	2.0
8	156	2	92	2.0
% of motifs represented				92.0

Table B.55. Kharabeh Shattani Ranked Exterior Motifs

Total sample = 242

Rank	Motif	Count	Cumulative	Percent
1	2/3	75	75	31.0
2	91	22	97	9.1
3	156	9	106	3.7
4	23	9	115	3.7
5	602	8	123	3.3
6	58	7	130	2.9
7	82	7	137	2.9
8	44	7	144	2.9
9	26	7	151	2.9
10	195	6	157	2.5
11	299	6	163	2.5
12	172	5	168	2.1
13	144	3	171	1.2
14	131	3	174	1.2
15	532	3	177	1.2
16	145	3	180	1.2
17	126	3	183	1.2
18	35	3	186	1.2
19	32	3	189	1.2
20	603	3	192	1.2
21	74	3	195	1.2
22	112	3	198	1.2
23	600	3	201	1.2
% of motifs represented				83.1

Table B.56. Kharabeh Shattani Grouped Interior Motifs

	Group	Count	Percent
Triangles	5002	1	1.0
Links	5004	2	1.9
Cross-hatch	5005	2	1.9
Ripples	5007	1	1.0
Swags	5008	24	23.3
Checks	5011	5	4.9
Negative	5012	1	1.0
Bukrania	5018	2	1.9
Total		103	48.98

Table B.57. Kharabeh Shattani Grouped Exterior Motifs

	Group	Count	Percent
Zigzags	5001	1	0.41
Triangles	5002	2	0.82
Lozenges	5003	11	4.49
Links	5004	29	11.84
Cross-hatch	5005	13	5.31
Chevrons	5006	11	4.49
Swags	5008	27	11.02
Checks	5011	7	2.86
Negative	5012	1	0.41
Bukrania	5018	9	3.67
Total		245	48.98

Table B.58. Khirbet esh-Shenef Ranked Interior Motifs

Total sample = 49

Rank	Motif	Count	Cumulative	Percent
1	26	15	15	30.6
2	2/3	9	24	18.4
3	195	6	30	12.2
4	72	2	32	4.1
5	377	2	34	4.1
6	161	2	36	4.1
7	6	2	38	4.1
% of motifs represented				77.6

Table B.59. Khirbet esh-Shenef Ranked Exterior Motifs

Total sample = 132

Rank	Motif	Count	Cumulative	Percent
1	2/3	50	50	37.9
2	343	11	61	8.3
3	72	9	70	6.8
4	35	5	75	3.8
5	172	5	80	3.8
6	91	4	84	3.0
7	161	4	88	3.0
8	31	4	92	3.0
9	26	3	95	2.3
10	326	3	98	2.3
11	188	2	100	1.5
12	375	2	102	1.5
13	378	2	104	1.5
14	372	2	106	1.5
15	362	2	108	1.5
16	370	2	110	1.5
17	24	2	112	1.5
% of motifs represented				84.8

Table B.60. Khirbet esh-Shenef Grouped Interior Motifs

	Group	Count	Percent
Triangles	5001	1	2.0
Lozenges	5003	1	2.0
Links	5004	2	4.1
Cross-hatch	5005	15	30.6
Ripples	5007	1	2.0
Swags	5008	7	14.3
Dancers	5009	2	4.1
Total		103	48.98

Table B.61. Khirbet esh-Shenef Grouped Exterior Motifs

	Group	Count	Percent
Zig-zag	5001	5	3.65
Lozenges	5003	14	10.22
Links	5004	3	2.19
Cross-hatch	5005	10	7.30
Chevrons	5006	10	7.30
Ripples	5007	2	1.46
Swags	5008	2	1.46
Bars	5010	2	1.46
Bukrania	5018	5	3.65
Total		137	48.98

Table B.62. Shams ed-Din Ranked Interior Motifs

Total sample = 114

Rank	Motif	Count	Cumulative	Percent
1	2/3	52	52	45.6
2	44	22	74	19.3
3	26	7	81	6.1
4	172	5	86	4.4
5	155	4	90	3.5
6	188	4	94	3.5
7	47	4	98	3.5
8	35	4	102	3.5
9	169	2	104	1.8
10	195	2	106	1.8
% of motifs represented				93.0

Table B.63. Shams ed-Din Ranked Exterior Motifs

Total sample = 174

Rank	Motif	Count	Cumulative	Percent
1	2/3	61	61	35.1
2	91	34	95	19.5
3	47	11	106	6.3
4	37	9	115	5.2
5	72	5	120	2.9
6	131	5	125	2.9
7	156	4	129	2.3
8	126	4	133	2.3
9	35	3	136	1.7
10	172	3	139	1.7
11	26	3	142	1.7
12	240	3	145	1.7
13	351	2	147	1.1
14	348	2	149	1.1
15	343	2	151	1.1
16	504	2	153	1.1
17	30	2	155	1.1
18	24	2	157	1.1
19	492	2	159	1.1
% of motifs represented				91.4

Table B.64. Shams ed-Din Grouped Interior Motifs

	Group	Count	Percent
Lozenges	5003	4	3.5
Links	5004	1	0.9
Cross-hatch	5005	9	7.8
Chevrons	5006	5	4.3
Ripples	5007	4	3.5
Swags	5008	24	20.9
Dancers	5009	1	0.9
Negative	5012	1	0.9
Total		103	48.98

Table B.65. Shams ed-Din Grouped Exterior Motifs

	Group	Count	Percent
Zig-zags	5001	15	8.62
Lozenges	5003	11	6.32
Links	5004	3	1.72
Cross-hatch	5005	13	7.47
Chevrons	5006	5	2.87
Swags	5008	3	1.72
Bars	5010	1	0.57
Multi-line	5014	3	1.72
Bukrania	5018	4	2.30
Total		174	48.98

Table B.66. Umm Qseir Ranked Interior Motifs

Total sample = 57

Rank	Motif	Count	Cumulative	Percent
1	2/3	24	24	42.1
2	44	14	38	24.6
3	511	3	41	5.3
4	1	2	43	3.5
% of motifs represented				75.4

Table B.67. Umm Qseir Ranked Exterior Motifs

Total sample = 76

Rank	Motif	Count	Cumulative	Percent
1	2/3	29	29	38.2
2	91	5	34	6.6
3	157	3	37	3.9
4	511	3	40	3.9
5	299	3	43	3.9
6	32	3	46	3.9
7	126	2	48	2.6
8	590	2	50	2.6
9	591	2	52	2.6
10	6	2	54	2.6
11	58	2	56	2.6
12	589	2	58	2.6
13	74	2	60	2.6
% of motifs represented				78.9

Table B.68. Umm Qseir Grouped Interior Motifs

	Group	Count	Percent
Zig-zags	5001	1	1.7
Triangles	5002	3	5.2
Lozenges	5003	3	5.2
Links	5004	1	1.7
Chevrons	5006	1	1.7
Swags	5008	15	25.9
Total		103	48.98

Table B.69. Umm Qseir Grouped Exterior Motifs

	Group	Count	Percent
Zig-zags	5001	1	1.28
Triangles	5002	2	2.56
Lozenges	5003	6	7.69
Links	5004	3	3.85
Cross-hatch	5005	2	2.56
Chevrons	5006	7	8.97
Ripples	5007	2	2.56
Swags	5008	1	1.28
Bars	5010	1	1.28
Checks	5011	2	2.56
Bukrania	5018	6	7.69
Total		78	48.98

Table B.70. Hassuna/Samarra: Frequencies of decorative types

		Pnt	Inc	Pnt+Inc	Sample
Matarrah	UP	25%	75%		
Hassuna	III	20%	78%	2%	986
	IV-V	17%	71%	2%	4017
	VI	34%	51%	15%	570
Sawwan	II	54%	46%		41
	IIIA	62%	30%	8%	159
	IIIB-IV	79%	12%	9%	838
Shimshara	All levels	79%	9%	12%	594
Garsour		84%	5%	11%	352

Table B.71. Hassuna Interior Ranked motifs

Rank	Sawwan	Baghouz	Hassuna	Shimshara	Matarrah	Sabi Abyad	Garsour
1	91	91	91	32	91	2	2
2	2	2	80	268	37	91	91
3	82	273	2	256	282	460	422
4	273	82	237	80	273	26	176
5	32	176	274	273	80	171	233
6	435	26	215	176	257	575	82
7	270	51	147	274	229	233	26
8	466	32	32	35	32	47	247
9	415	289	239	435	1	51	80
10	423	509	257	264	254	270	268
11	176	556	82	282	555	30	32
12	427	269	485	280	435	72	430
13	509	274	224	289	256	65	35
14	282	270	90	257	20	256	262
15	507	462	240	229	232	559	98
16	274	413	230	91	289	43	266
17	544	264	256	37	274	82	424
18	289	512	283	126		588	126
19	1	552	260	296		247	150
20	65	30	214	237		1	
21	280		86				283
22							292
n=	518	298	255	448	102	435	470
%=	66.4	78.5	67.5	86.8	85.3	74.9	81.3

Table B.72. Hassuna Exterior Ranked motifs

Rank	Sawwan	Baghouz	Hassuna	Shimshara	Matarrah	Sabi Abyad	Garsour
1	543	272	243	272	1	2	2
2	541	35	255	26	243	44	272
3	272	2	272	422	91	582	44
4	91	543	1	35	456	91	35
5	82	541	2			35	441
6	2	441				583	91
7	36	1				541	431
8	435	82				195	460
9	35	91					151
10	273	273					4
11	544	556					72
12	1	26					
13	37	4					
14	270						
15	486						
16	65						
n=	211	69	44	35	16	129	84
%=	77.7	85.5	75	82.9	62.5	95.3	76.2

Table B.73. Hassuna Interior ranked motifs: Simple coefficient of dissimilarity

	Sawwan	Baghouz	Hassuna	Shimshara	Matarrah	Sabi Abyad	Garsour
	16	13	5	4	4	?	11
Sawwan		9	3	2	2	4	2
Baghouz	0.69		3	2	1	3	3
Hassuna	0.60	0.60		1	2	1	2
Shimshara	0.50	0.50	0.25		0	1	2
Matarrah	0.50	0.25	0.50	0.00		1	0
Sabi Abyad	?	?	?	?	?		4
Garsour	0.18	0.27	0.40	0.50	0	?	

Note: Top right is the number of matches between each site. Bottom left is the number of matches divided by the number of motifs present at the site with fewer motifs (ie the maximum possible matches).

Table B.74. Hassuna Exterior ranked motifs: Simple coefficient of dissimilarity

	Sawwan	Baghouz	Hassuna	Shimshara	Matarrah	Sabi Abyad	Garsour
n=	21	20	21	20	15	19	22
Sawwan		9	4	8	6	4	7
Baghouz	0.45		5	3	3	6	6
Hassuna	0.19	0.25		5	4	4	6
Shimshara	0.40	0.15	0.25		8	2	6
Matarrah	0.40	0.20	0.27	0.53		2	4
Sabi Abyad	0.21	0.32	0.21	0.11	0.13		6
Garsour	0.33	0.30	0.29	0.30	0.27	0.32	

Note: Top right is the number of matches between each site. Bottom left is the number of matches divided by the number of motifs present at the site with fewer motifs (ie the maximum possible matches).

Table B.75. Hassuna Exterior Grouped Motifs: Summary table

	Sawwan IIIB	Sawwan IV	Baghouz	Hassuna	Shimshara	Matarrah	Sabi Abyad	Garsour	NJP 72
Zig-zag	11	9.5	15	14	20	18	6	6	3
Triangles	3	3	1	9	1.3	4.5	2	2	2
Lozenges	3	5	1	4		2	9	1	2
Links	1		0.5				3	0.2	
Cross-Hatch	8	11	17	23	6	11	28	7	28
Chevrons	9	5	6	21	22	11	3	15	3
Ripples	3	4			2		1	3	1
Swags		1	0.5		1		3	1	1
Dancers		1							
Bars	6	8	15	1	13	7	1	6	7
Negative	3			2	0.2	0.7	1	0.2	
Steps	6	8	7	2	6	5	5	1.5	
Multi-line	6	5	12	23	23	23	2	3	
Checks			0.5	0.5	0.2	0.7	1.3	0.3	3

Note: Tell es-Sawwan level IIIA has 13.5% multi-line motifs

Table B.76. Hassuna Interior Grouped Motifs: Summary table

	Sawwan IIIB	Sawwan IV	Baghouz	Hassuna	Shimshara	Matarrah	Sabi Abyad	Garsour	NJP 72
Zig-zag	7.5	5	5.8	2.3	2.8	14.3	4.7	6.6	
Triangles	16.5	29.6	21.7	11.4	2.8	14.3	3.8		
Lozenges	6			34.1		14.3			
Links				2.3					
Cross-hatch	2.5		4.3	6.8	28.5			2.8	
Chevrons	5	7.5			17.1				
Ripples	5	3.7	1.4			4.7		2.8	16.3
Swags	1.3	1.2		2.3			18.2	11.3	24.5
Dancers	6.3	12.4	14.5		2.86	4.7	9.8	5.6	
Bars	8.8		4.3				13.6		4
Negative	2.5								
Steps	5	5	5.8	2.3				0.9	
Multi-line								1.89	

Table B.77. Halaf Interior Ranked Motifs

Rank	NJP 119	KS	KSh	Shams	Umm Qseir
1	2	2	26	2	2
2	44	44	2	44	44
3	129	91	195	26	511
4	91	58	72	172	1
5	6	185	377	155	
6	171	35	161	188	
7	343	23	6	47	
8	1	156		35	
9				169	
10				195	
n =	106	100	49	114	57
% =	87.7%	92%	77.6%	93%	75%

Table B.78. Halaf Exterior Ranked Motifs

Rank	NJP 119	KS	KSh	Shams	Umm Qseir
1	2	2	2	2	2
2	91	91	343	91	91
3	44	156	72	47	157
4	6	23	35	37	511
5	493	602	172	72	299
6	172	58	91	131	32
7	47	82	161	156	126
8	31	44	31	126	590
9	338	26	26	35	591
10		195	326	172	6
11		299	188	26	58
12		172	375	240	589
13		144	378	351	74
14		131	372	348	
15		532	362	343	
16		145	370	504	
17		126	24	30	
18		35		24	
19		32		492	
20		603			
21		74			
22		112			
23		600			
n =	47	242	132	174	76
% =	84.7%	83.1%	84.8%	91.4%	78.9%

Table B.79. Halaf Interior ranked motifs: Simple coefficient of dissimilarity

	NJP 119	KS	KSh	Shams	UQ
	8	8	7	10	4
NJP 119		3	2	2	3
KS	0.38		3	2	2
KSh	0.29	0.43		1	1
Shams	0.25	0.25	0.14		2
UQ	0.75	0.50	0.25	0.50	

Note: Top right is the number of matches between each site. Bottom left is the number of matches divided by the number of motifs present at the site with fewer motifs (ie the maximum possible matches).

Table B.80. Halaf Exterior ranked motifs: Simple coefficient of dissimilarity

	NJP 119	KS	KSh	Shams	UQ
	9	23	17	19	13
NJP 119		3	4	4	3
KS	0.33		5	8	7
KSh	0.44	0.29		8	2
Shams	0.44	0.42	0.47		3
UQ	0.33	0.54	0.15	0.23	

Note: Top right is the number of matches between each site. Bottom left is the number of matches divided by the number of motifs present at the site with fewer motifs (ie the maximum possible matches).

Table B.81. Halaf Interior Grouped Motifs: Summary table

	NJP 119	KS	KSh	Shams	Umm Qseir	Sabi Abyad	Garsour	NJP 72
Zig-zag	0.9				1.7	4.7	6.6	
Triangles	1.8	1.0	2.0		5.2	3.8		
Lozenges	11.9		2.0	3.5	5.2			
Links	0.9	1.9	4.1	0.9	1.7			
Cross-hatch	6.4	1.9	30.6	7.8			2.8	
Chevrons	0.9			4.3	1.7			
Ripples		1.0	2.0	3.5			2.8	16.3
Swags	22.9	23.3	14.3	20.9	25.9	18.2	11.3	24.5
Dancers			4.1	0.9		9.8	5.6	
Bars	0.9					13.6		4
Checks	0.9	4.9						
Negative		1.0		0.9				
Steps							0.9	
Multi-line							1.89	
Incised	1.8							
Bukrania	0.9	1.9						

Table B.82. Halaf Exterior Grouped Motifs: Summary table

	NJP 119	KS	KSh	Shams	Umm Qseir	Sabi Abyad	Garsour	NJP 72
Zig-zag	2.02	0.41	3.65	8.62	1.28	6	6	3
Triangles		0.82			2.56	2	2	2
Lozenges	10.10	4.49	10.22	6.32	7.69	9	1	2
Links	3.03	11.84	2.19	1.72	3.85	3	0.2	
Cross-hatch	5.05	5.31	7.30	7.47	2.56	28	7	28
Chevrons	5.05	4.49	7.30	2.87	8.97	3	15	3
Ripples			1.46		2.56	1	3	1
Swags	8.08	11.02	1.46	1.72	1.28	3	1	1
Dancers								
Bars			1.46	0.57	1.28	1	6	7
Checks		2.89			2.56	1.3	0.3	3
Negative		0.41				1	0.2	
Steps						5	1.5	
Multi-line				1.72		2	3	
Incised								
Bukrania		3.67	3.65	2.30	7.69			

Table B.83. Interior Motifs; Robinson's coefficient of Dissimilarity

	Matar	HS	T Sw	BGZ	Shim	KG	TSA	Shams	KS	KSh	UQ	119
Matar		69.6	28.6	41.1	5.7	24.2	25.2	0.0	17.5	4.1	10.3	22.0
HS	69.6		31.4	50.6	17.5	50.8	21.3	22.6	23.5	23.7	14.3	18.9
T Sw	28.6	31.4		103.7	26.4	37.3	45.0	23.5	33.4	21.0	22.2	29.3
BGZ	41.1	50.6	103.7		37.1	74.4	53.7	34.4	38.3	33.9	24.6	28.4
Shim	5.7	17.5	26.4	37.1		17.5	11.2	26.6	7.8	55.5	5.7	5.5
KG	24.2	50.8	37.3	74.4	17.5		86.1	78.2	75.7	52.1	57.4	60.0
TSA	25.2	21.3	45.0	53.7	11.2	86.1		105.1	114.9	57.4	81.0	92.5
Shams	0.0	22.6	23.5	34.4	26.6	78.2	105.1		132.6	72.2	114.8	93.1
KS	17.5	23.5	33.4	38.3	7.8	75.7	114.9	132.6		52.1	128.1	103.8
KSh	4.1	23.6	21.0	33.9	55.5	52.1	57.4	72.2	52.1		38.3	34.5
UQ	10.3	14.3	22.2	24.6	5.7	57.4	81.0	114.8	128.1	38.3		105.8
119	22.0	18.9	29.3	28.4	5.5	60.0	92.5	93.1	103.8	34.5	105.8	

Key: Matar - Matarrah; HS - Tell Hassuna; T Sw - Tell es-Sawwan; BGZ - Baghouz; Shim - Tell Shimshara; KG - Khirbet Garsour; TSA - Tell Sabi Abyad; Shams - Shams ed-Din; KS - Kharabeh Shattani; KSh - Khirbet esh-Shenef; UQ - Umm Qseir; 119 - NJP 119.
Note NJP 72 is omitted because of the small sample size.

Table B.84. Exterior Motifs; Robinson's Coefficient of Dissimilarity

	Matar	HS	T Sw	BGZ	Shim	KG	TSA	Shams	KS	KSh	UQ	119
Matar		84.6	69.2	67.7	72.3	52.3	36.5	40.8	25.5	9.0	17.1	23.4
HS	84.6		60.8	64.6	50.0	66.8	56.9	45.8	40.7	26.2	27.4	32.8
T Sw	69.2	60.8		112.3	49.8	91.3	74.3	59.8	55.5	38.3	42.4	45.0
BGZ	67.7	64.6	112.3		68.0	97.0	82.7	56.7	61.0	40.4	46.6	45.5
Shim	72.3	50.0	49.8	68.0		44.3	20.6	15.1	13.3	18.8	9.7	7.4
KG	52.3	66.8	91.3	97.0	44.3		80.5	72.2	73.3	48.5	57.9	60.6
TSA	36.5	56.9	74.3	82.7	20.6	80.5		75.3	73.5	62.7	66.3	73.1
Shams	40.8	45.8	59.8	56.7	15.1	72.2	75.3		89.5	105.2	89.2	106.3
KS	25.5	40.7	55.5	61.0	13.3	73.3	73.5	89.5		72.4	100.7	97.9
KSh	9.0	26.2	38.3	40.4	18.8	48.5	62.7	105.2	72.4		80.8	86.4
UQ	17.1	27.4	42.4	46.6	9.7	57.9	66.3	89.2	100.7	80.8		98.4
119	23.4	32.8	45.0	45.5	7.4	60.6	73.1	106.3	97.9	86.4	98.4	

Key: Matar - Matarrah; HS - Tell Hassuna; T Sw - Tell es-Sawwan; BGZ - Baghouz; Shim - Tell Shimshara; KG - Khirbet Garsour; TSA - Tell Sabi Abyad; Shams - Shams ed-Din; KS - Kharabeh Shattani; KSh - Khirbet esh-Shenef; UQ - Umm Qseir; 119 - NJP 119.

Note NJP 72 is omitted because of the small sample size.

Table B.85. Correlations of Phasings

Traditional	North Iraq	Central Iraq	North Syria
Proto-Hassuna	Proto-Hassuna	?Sawwan I-II	Balikh IIA
Archaic Hassuna	Hassuna I		?Balikh IIB
Standard Hassuna	Hassuna II		?Balikh IIC
Samarran	Hassuna III	Samarran	Balikh IIIA
	Halaf Ia	Samarran	Balikh IIIB
Early Halaf	Halaf Ib	?CMT	Balikh III?
Middle Halaf	Halaf Ila		Balikh IIIC
Late Halaf	Halaf IIb	?Halaf IIb	Balikh IIID
Halaf-Ubaid Trans	Halaf-Ubaid Trans	?Ubaid	Halaf-Ubaid Trans

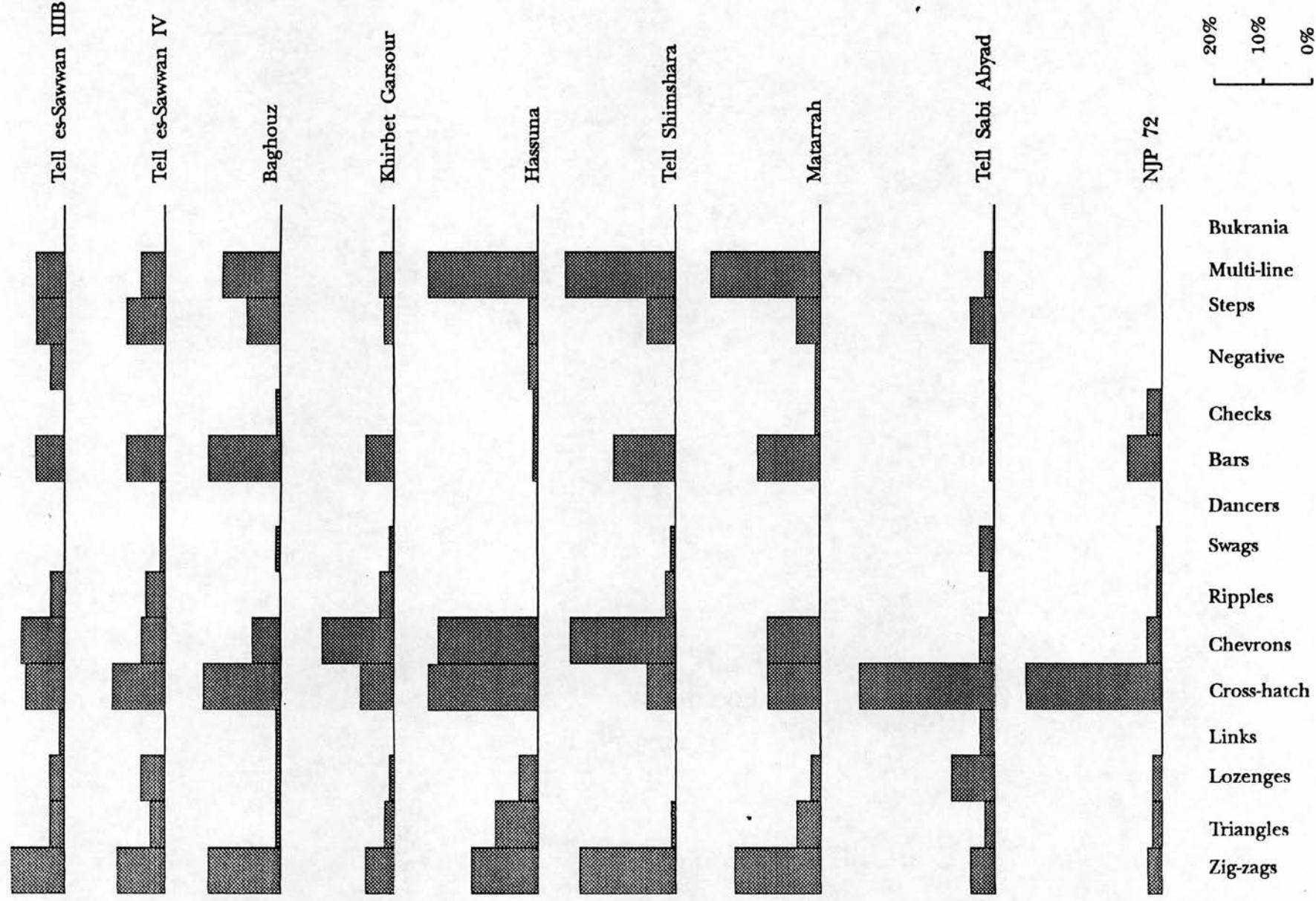


Fig. B.1 Hassuna Exterior Grouped Motifs

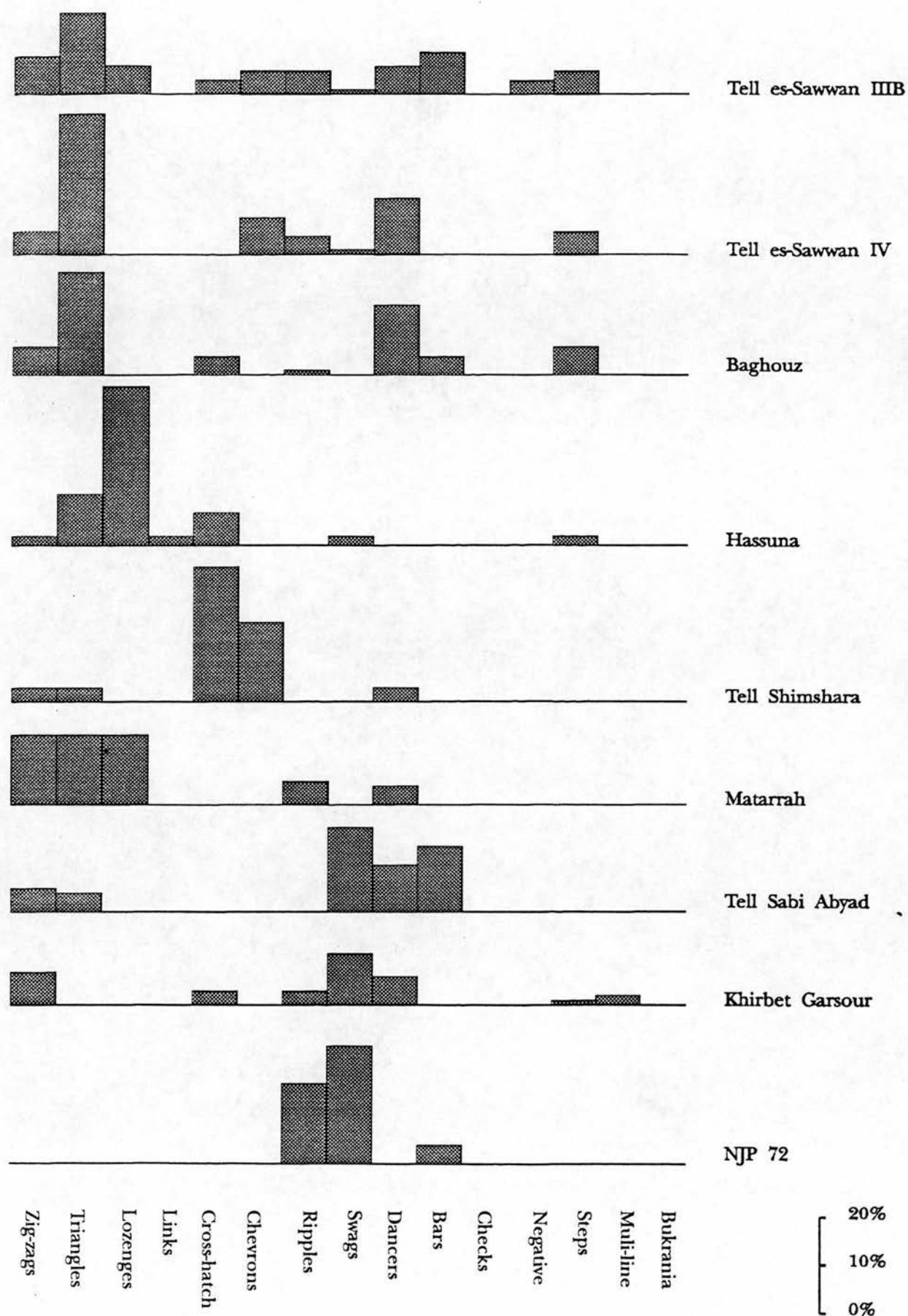


Fig. B.2 Hassuna Interior Grouped Motifs

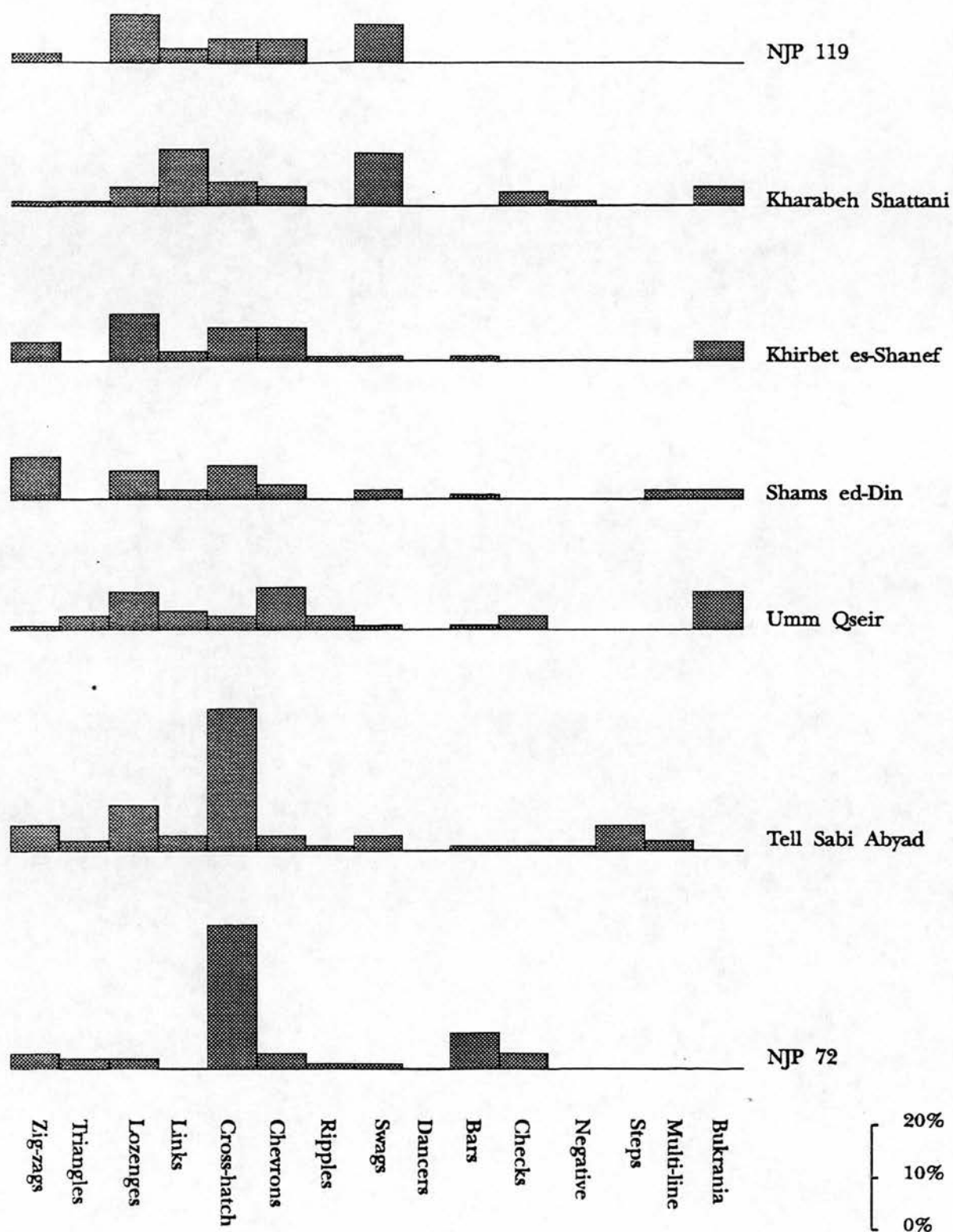


Fig. B.3 Halaf Exterior Grouped Motifs

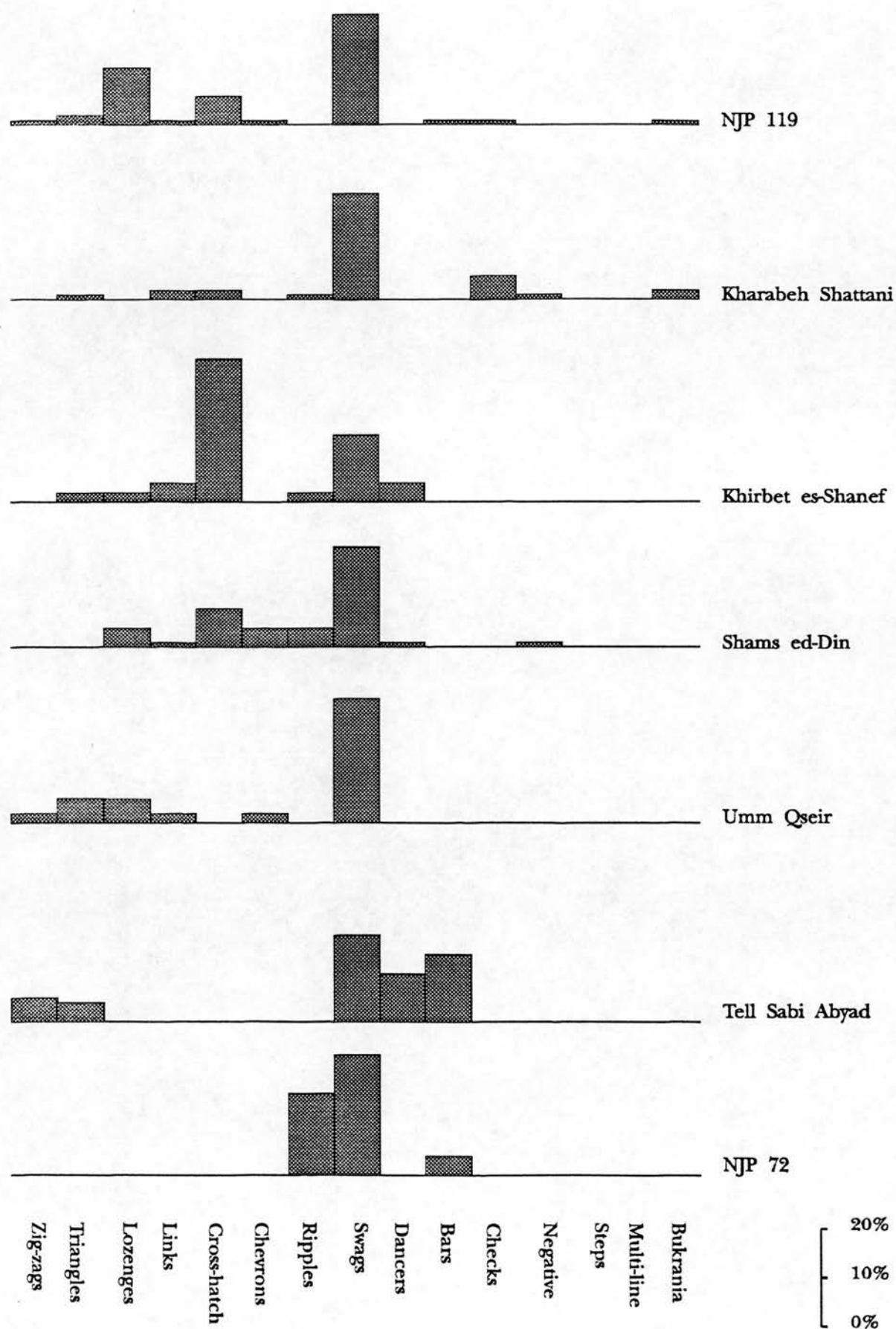


Fig. B.4 Halaf Interior Grouped Motifs








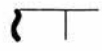



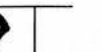

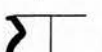

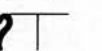






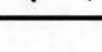
	Bowls		Pots		Jars
A1		B1		C1	
A2		B2		C2	
A3		B3		C3	
A4		B4		C4	
A5				C5	
A6				C6	
A7					
A8					
A9					
A10					
A11					
A12					
A14					

Fig. B.5 Generalised form types referred to in the text (this is not intended to be a comprehensive listing)

Fig. B.6 List of motifs

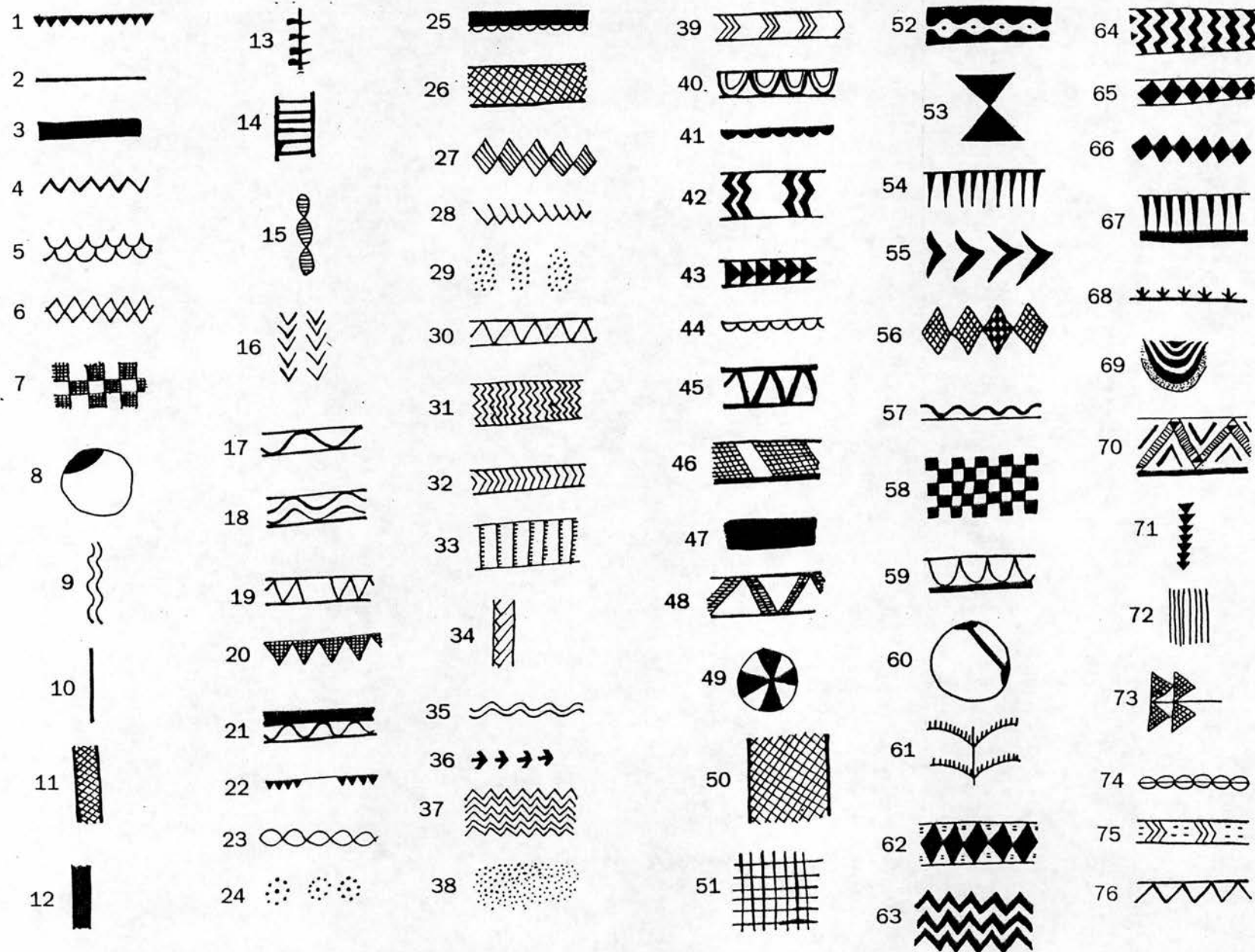


Fig. B.6 List of motifs (continued)

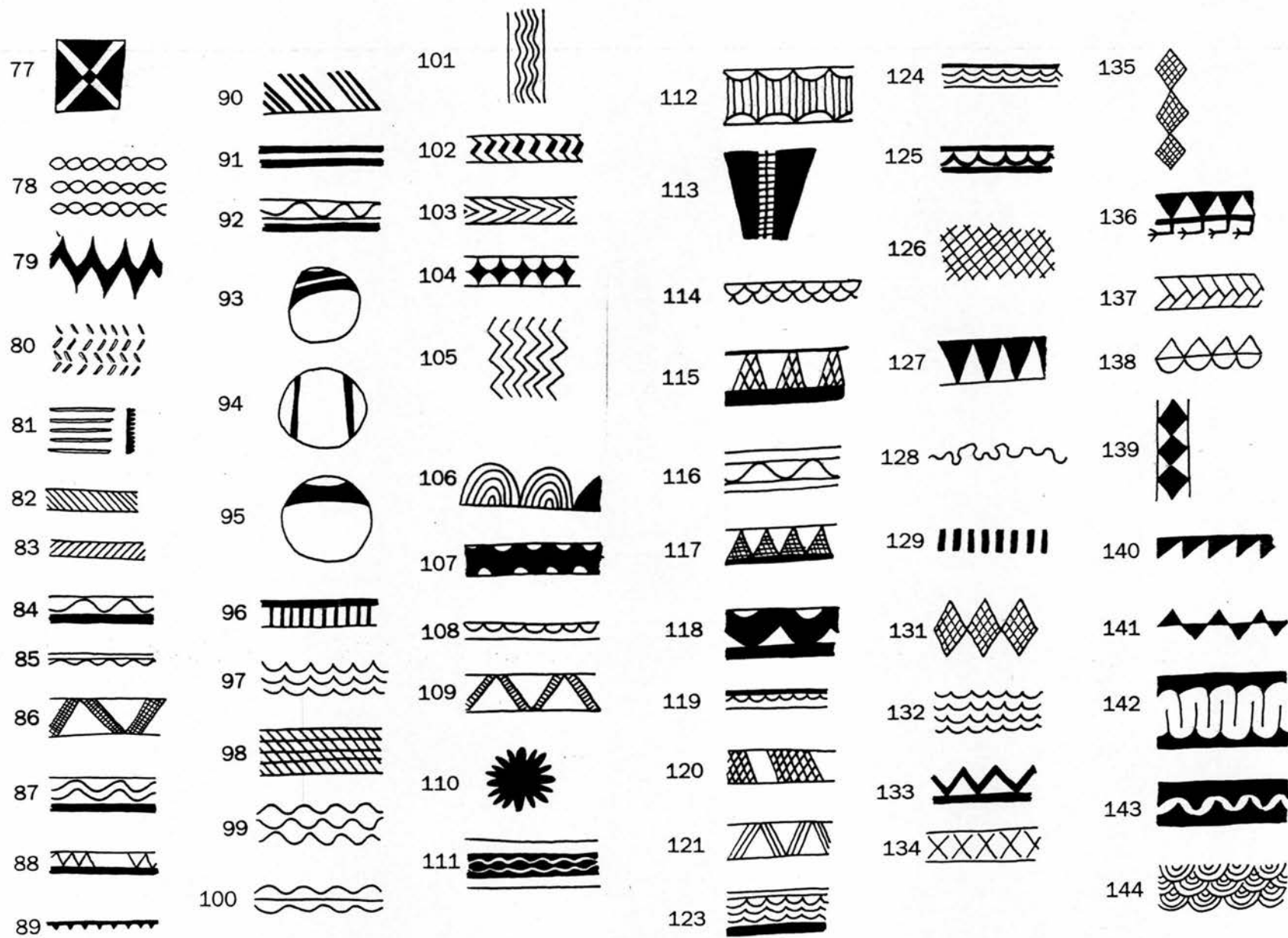


Fig. B.6 List of motifs (continued)

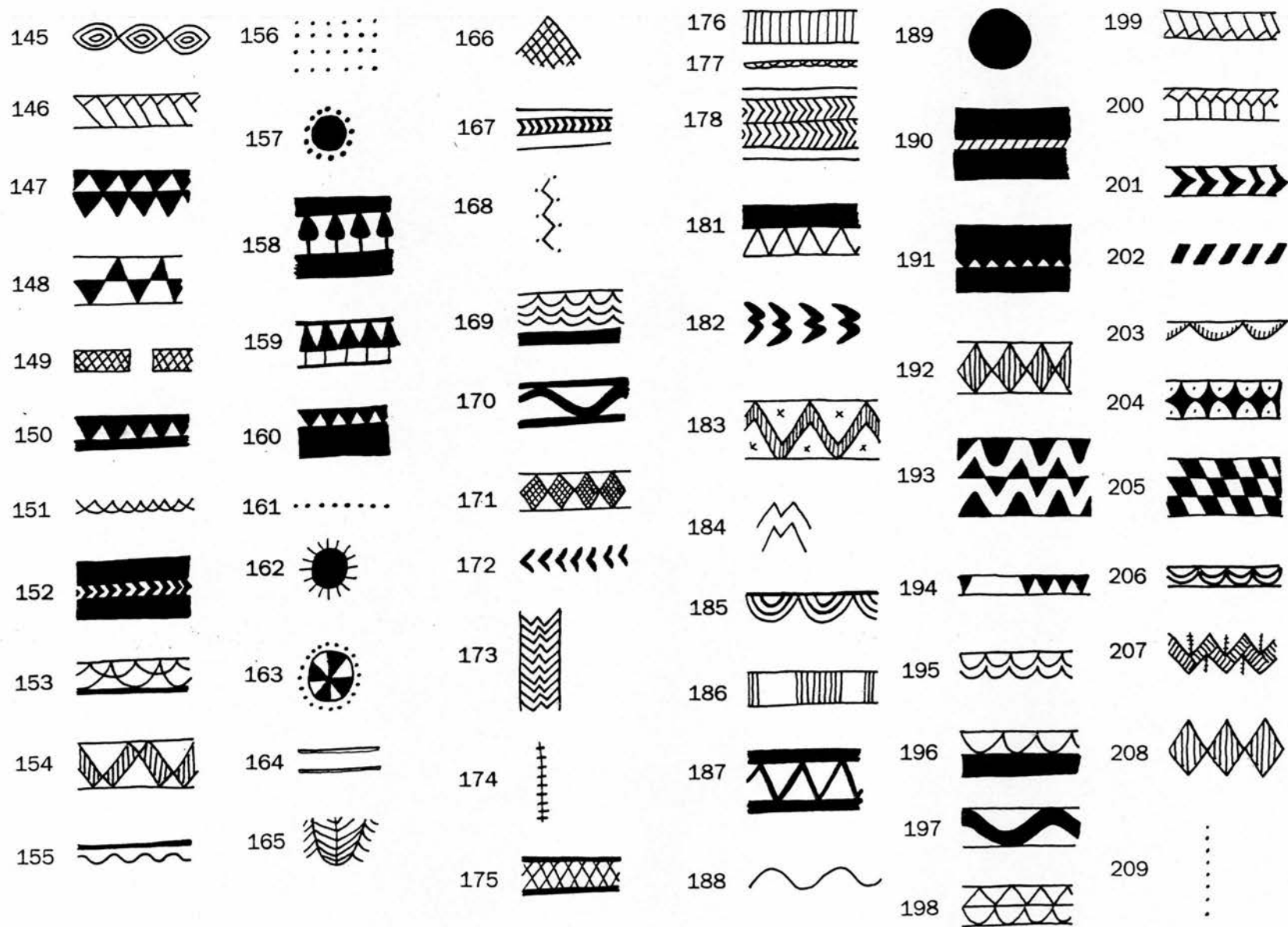
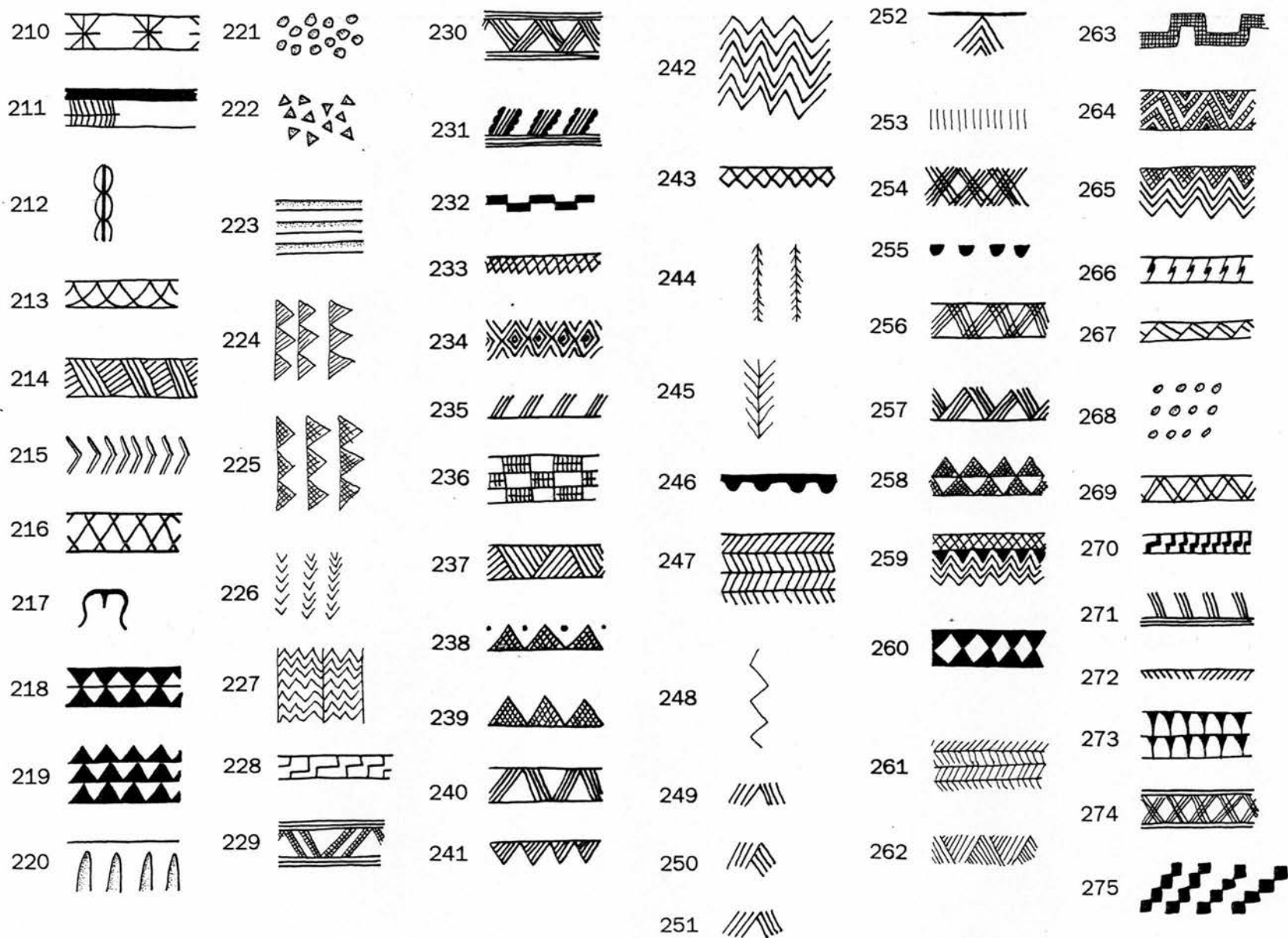


Fig. B.6 List of motifs (continued)



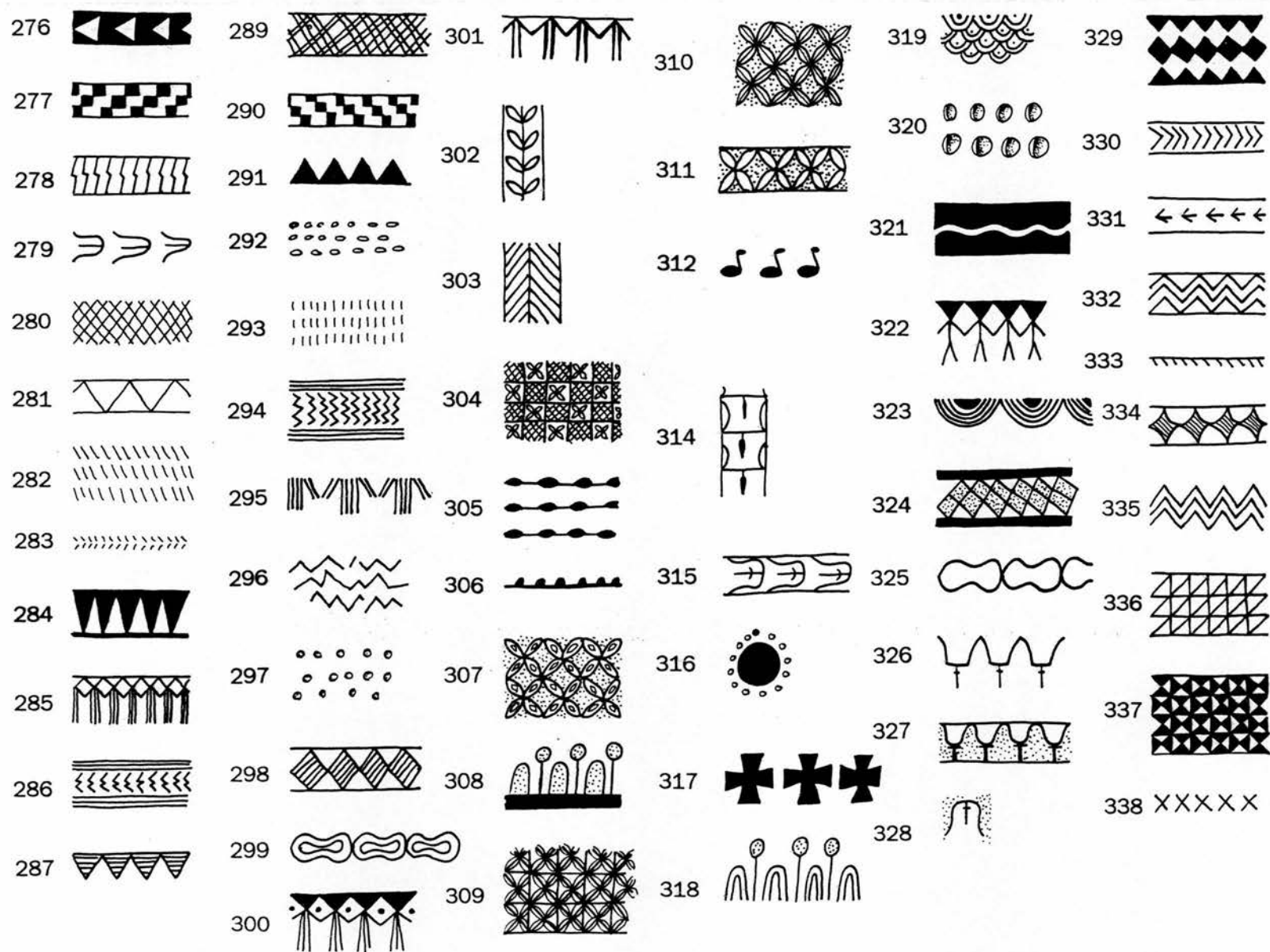


Fig. B.6 List of motifs (continued)

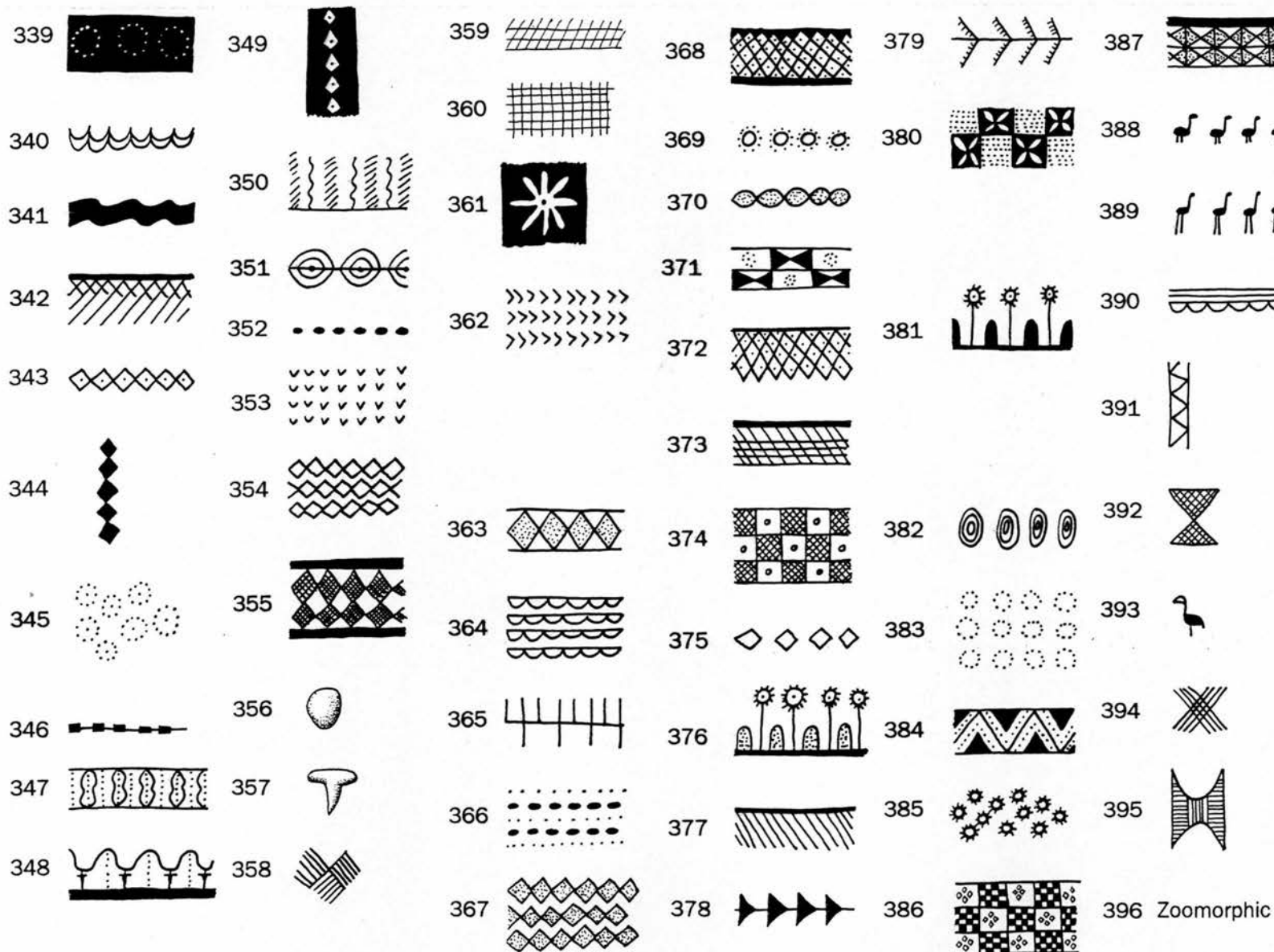


Fig. B.6 List of motifs (continued)

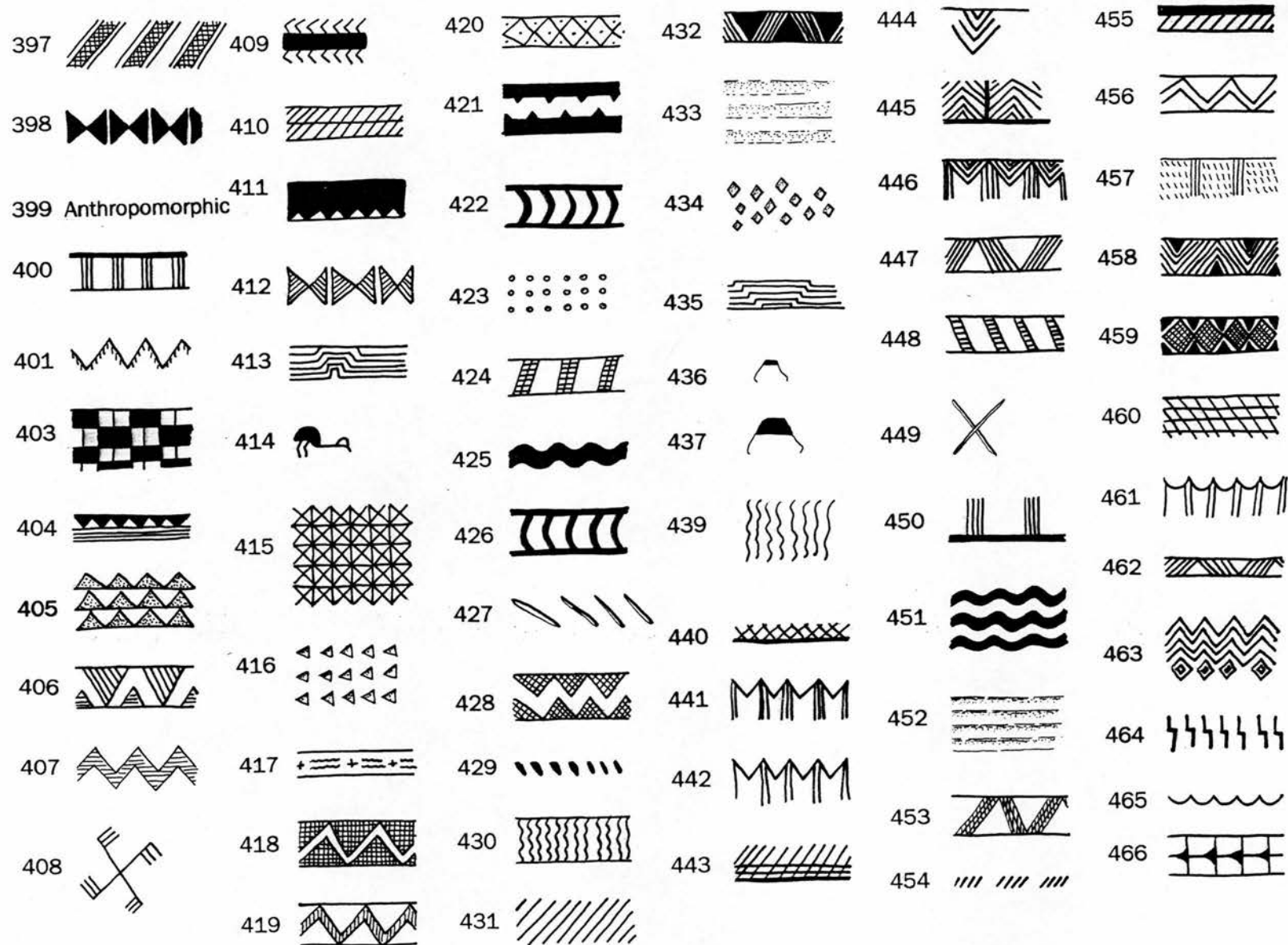


Fig. B.6 List of motifs (continued)

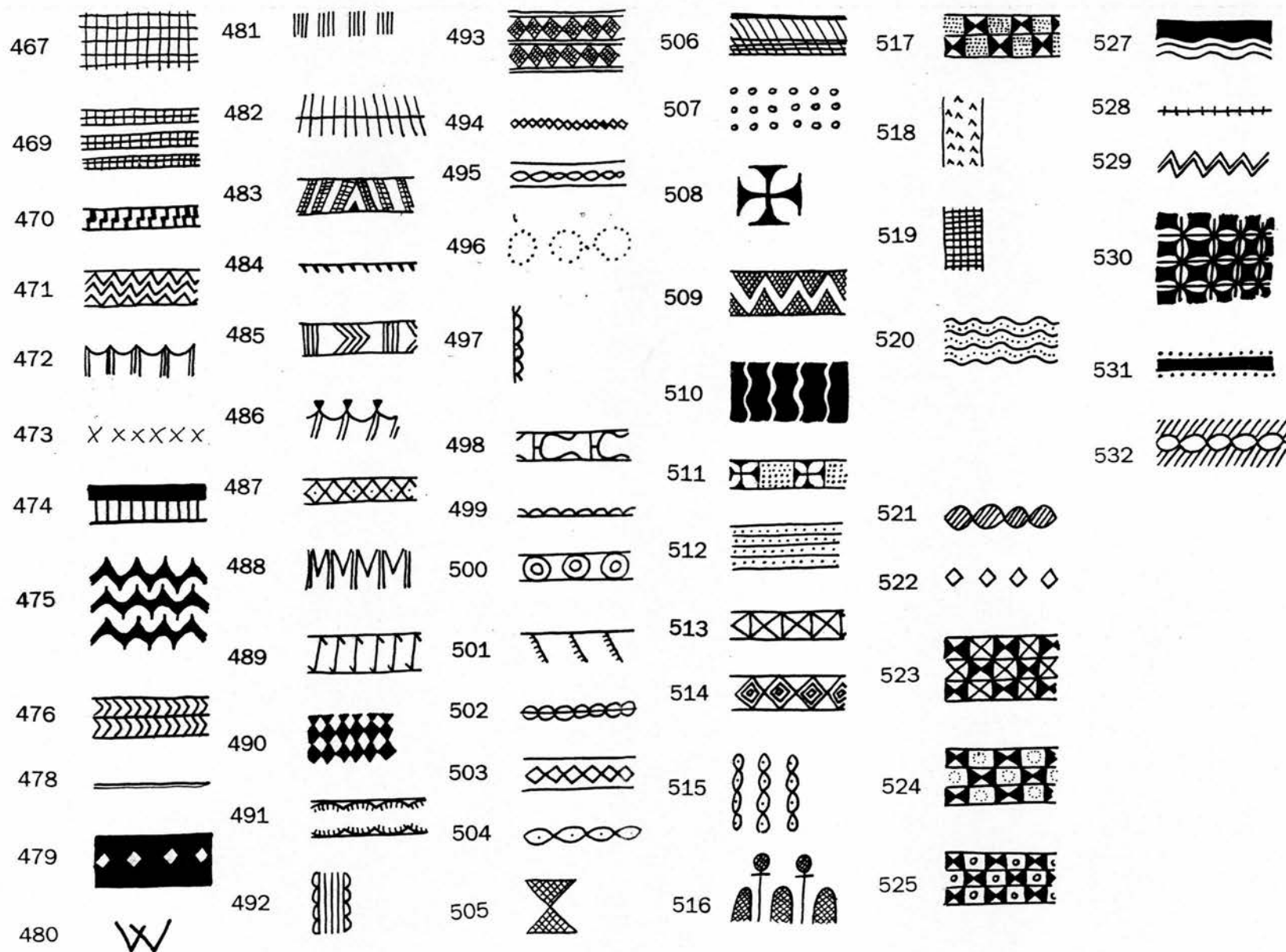
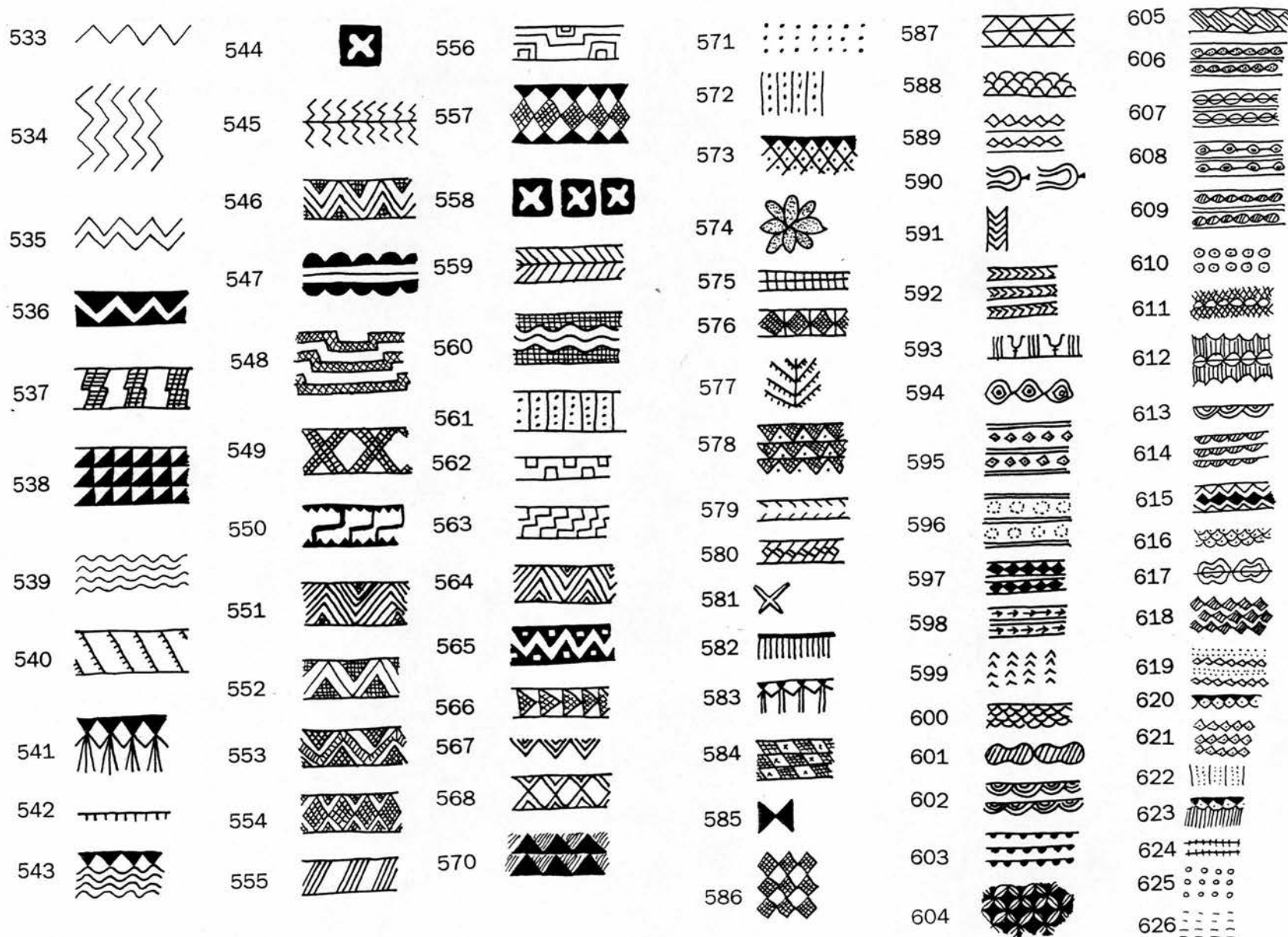


Fig. B.6 List of motifs (continued)



Appendix C

Catalogue of Radiocarbon Dates

All dates cited are uncalibrated and are BC rather than BP.

P-1499	Ali Agha	4977±63	GrN-6245	Girikihiacyan	4855±45
Context:	Uncertain		Material:	Charcoal - a small log	
Material:	Uncertain		Reference:	Watson and LeBlanc 1990, 39-40	
Reference:	<i>Radiocarbon</i> 15, 1973, 372				
P-1487	Chagar Bazar	4715±77	GrN-6246	Girikihiacyan	5000±45
Context:	Level 11-12		Context:	Pits dug into natural	
Material:	Ash		Material:	Charcoal	
Reference:	<i>Radiocarbon</i> 15, 1973, 373		Notes:	Combined sample from two contexts	
			Reference:	Watson and LeBlanc 1990, 39-40	
BM-483	Chogha Mami	4896±182	GrN-5882	Girikihiacyan	4515±100
Context:	Transitional		Context:	Level 9, levels 4-5. post-Halaf	
Material:	Wood charcoal		Material:	Charcoal	
Reference:	<i>Radiocarbon</i> 19/2, 1977 151		Notes:	This appears to be a combined sample from several contexts.	
UtC-1097-1099			Reference:	Watson and LeBlanc 1990, 39	
	Damishliyya	5720±60	GrN-13041	Hammam et-Turkman	3810±80
Context:	Level 5-7		Context:	Phase IV A Stratum 4	
Material:	Chaff in sherds		Material:	Charcoal scatter	
Notes:	Average of three samples		Reference:	Akkermans, 1988, 130	
Reference:	Akkermans 1990, 114				
UtC-1124	Damishliyya	5750±90	GrN-13040	Hammam et-Turkman	4160±100
Context:	Level 5-7		Context:	Phase IV B Stratum 5	
Material:	Charcoal		Material:	Charcoal scatter	
Reference:	Akkermans 1990, 114		Reference:	Akkermans, 1988, 130	
UtC-1094-1096			GrN-13038	Hammam et-Turkman	4160±80
	Damishliyya	5970±110	Context:	Phase IV B Stratum 6	
Context:	Level 5-7		Material:	Plant remains	
Material:	Chaff in sherds		Reference:	Akkermans, 1988, 130	
Notes:	Average of three samples				
Reference:	Akkermans 1990, 114		GrN-13039	Hammam et-Turkman	8330±90
P-1501	Gird Banahilk	4359±78	Context:	Phase IV B Stratum 6	
Material:	Hearth (? charcoal & ash)		Material:	Charcoal scatter	
Reference:	<i>Radiocarbon</i> 15, 1973, 373		Reference:	Akkermans, 1988, 130	
P-1502	Gird Banahilk	4802±85	W-609	Tell Hassuna	1080±200
Material:	Wood carbon		Context:	Level Ia	
Reference:	<i>Radiocarbon</i> 15, 1973, 373		Material:	Wood charcoal	
			Reference:	<i>Radiocarbon</i> 2, 1960, 182	
P-1504	Gird Banahilk	4904±72	W-660	Tell Hassuna	5090±200
Material:	Shell (Helix)		Context:	Level V	
Reference:	<i>Radiocarbon</i> 15, 1973, 373		Material:	Wood charcoal	
			Reference:	<i>Radiocarbon</i> 2, 1960, 183	

W-623	Mattarah	5620±250	OxA-817	Tell Arjoune	3900±80
Context: Op. IV-4. Lower Phase			Context: Level VI		
Material: Wood charcoal			Material: Burnt grain		
Reference: <i>Radiocarbon</i> 2, 1960, 183			Reference: <i>Archaeometry</i> 1987		
P-389	Ras Shamra	4184±173	OxA-574	Tell Arjoune	4490±90
Context: Niv. IIIc			Context: Level VII		
Material: Wood charcoal			Material: Burnt bone		
Notes: see also Conyenson 1977			Reference: <i>Archaeometry</i> 1987		
Reference: <i>Radiocarbon</i> 5, 1963, 83					
P-457	Ras Shamra	5234±84	OxA-577	Tell Arjoune	4530±130
Context: Sondage SC, niv. Va (=V2)			Context: Level VII		
Material: Wood charcoal			Material: Human bone		
Reference: <i>Radiocarbon</i> 5, 1963, 83			Reference: <i>Archaeometry</i> 1987		
P-458	Ras Shamra	5736±112	OxA-575	Tell Arjoune	4650±100
Context: Sondage SC, niv. Vb (=V2)			Context: Level VII		
Material: Wood carbon			Material: Bone		
Reference: <i>Radiocarbon</i> 5, 1963, 83			Reference: <i>Archaeometry</i> 1987		
BM-1822R	Tell Abada	31250±1250	OxA-576	Tell Arjoune	4810±100
Context: Level I			Context: Level VII		
Reference: Bowman <i>et al</i> 1990			Material: Bone		
			Reference: <i>Archaeometry</i> 1987		
BM-1823R	Tell Abada	3970±100	BM-1531	Tell Arpachiyah	4980±60
Context: Level II/III			Context: Layer 25		
Reference: Bowman <i>et al</i> 1990			Material: Wood charcoal		
			Reference: <i>Radiocarbon</i> 24/3, 1982, 248		
Beta-536	Tell Aqab	4210±70	P-585	Tell Arpachiyah	6114±78
Reference: Tom Davidson, pers comm			Context: TT6?		
OxA-571	Tell Arjoune	4560±100	Material: Wood charcoal and ash		
Context: Level V			Notes: collected in 1954		
Material: Burnt bone			Reference: <i>Radiocarbon</i> 7, 1965, 188		
Reference: <i>Archaeometry</i> 1987					
OxA-617	Tell Arjoune	4720±140	P-584	Tell Arpachiyah	5077±83
Context: Level V			Context: TT8		
Material: Bone			Material: Wood charcoal and ash		
Reference: <i>Archaeometry</i> 1987			Notes: Collected in 1954		
			Reference: <i>Radiocarbon</i> 7, 1965, 188		
OxA-650	Tell Arjoune	4750±110	MC-865	Tell Assouad	6670±120
Context: Level V			Context: III,1 (aceramic)		
Material: Bone			Material: Wood carbon		
Reference: <i>Archaeometry</i> 1987			Reference: Cauvin 1974, 203		
OxA-572	Tell Arjoune	2780±100	MC-607	Tell Assouad	10550±160
Context: Level VI			Context: VI		
Material: Burnt bone			Material:		
Reference: <i>Archaeometry</i> 1987			Reference: Cauvin 1974, 203		
OxA-818	Tell Arjoune	3500±80	MC-864	Tell Assouad	6500±120
Context: Level VI			Context: VIII,1 (ceramic)		
Material: Bone			Material: Wood carbon		
Reference: <i>Archaeometry</i> 1987			Reference: Cauvin 1974, 203		
OxA-573	Tell Arjoune	3700±100	GrN-10592	Tell Bouqras	6160±50
Context: Level VI			Context: Niv 10		
Material: Burnt bone			Reference: Aurenche, Evin and Hours 1987, 702		
Reference: <i>Archaeometry</i> 1987					
OxA-816	Tell Arjoune	3810±80	GrN-13099	Tell Bouqras	6075±50
Context: Level VI			Context: Niv 3		
Material: Burnt grain			Reference: Aurenche, Evin and Hours 1987, 703		
Reference: <i>Archaeometry</i> 1987					

GrN-13100	Tell Bouqras	6130±50	GrN-4820	Tell Bouqras	5990±60
Context: Niv 3			Context: Niv III		
Reference: Aurenche, Evin and Hours 1987, 703			Material: Wood charcoal		
			Reference: <i>Radiocarbon</i> 9, 1967, 128		
GrN-10589	Tell Bouqras	5515±45	GrN-8264	Tell Bouqras	5910±40
Context: Niv 3-4			Context: -5m		
Reference: Aurenche, Evin and Hours 1987, 702			Material: Charcoal		
			Notes: Recut of de Contenson sounding		
GrN-13079	Tell Bouqras	5535±50	Reference: Akkermans 1981, 490		
Context: Niv 3-4					
Reference: Aurenche, Evin and Hours 1987, 702					
GrN-13081	Tell Bouqras	5570±50	GrN-8260	Tell Bouqras	5955±45
Context: Niv 3-4			Context: -2.6m		
Reference: Aurenche, Evin and Hours 1987, 703			Material: Charcoal		
			Notes: Recut of de Contenson sounding		
GrN-13082	Tell Bouqras	5580±50	Reference: Akkermans 1981, 490		
Context: Niv 3-4					
Reference: Aurenche, Evin and Hours 1987, 703					
GrN-13090	Tell Bouqras	5930±60	GrN-8259	Tell Bouqras	5975±40
Context: Niv 3-4			Context: -2.5m		
Reference: Aurenche, Evin and Hours 1987, 703			Material: Charcoal		
			Notes: Recut of de Contenson sounding		
GrN-10591	Tell Bouqras	5995±50	Reference: Akkermans 1981, 490		
Context: Niv 3-4					
Reference: Aurenche, Evin and Hours 1987, 702					
GrN-13080	Tell Bouqras	6415±50	GrN-8258	Tell Bouqras	6165±40
Context: Niv 3-4			Context: -0.5m		
Reference: Aurenche, Evin and Hours 1987, 703			Material: Charcoal		
			Notes: Recut of de Contenson sounding		
GrN-10590	Tell Bouqras	10280±190	Reference: Akkermans 1981, 490		
Context: Niv 3-4					
Reference: Aurenche, Evin and Hours 1987, 702					
GrN-13101	Tell Bouqras	6280±35	GrN-8261	Tell Bouqras	6205±45
Context: Niv 7			Context: -2.4m		
Reference: Aurenche, Evin and Hours 1987, 703			Material: Charcoal		
			Notes: Recut of de Contenson sounding		
GrN-13102	Tell Bouqras	6395±35	Reference: Akkermans 1981, 490		
Context: Niv 8					
Reference: Aurenche, Evin and Hours 1987, 703					
GrN-13103	Tell Bouqras	6335±50	GrN-8263	Tell Bouqras	6380±80
Context: Niv 9			Context: -5m		
Reference: Aurenche, Evin and Hours 1987, 703			Material: Charcoal		
			Notes: Recut of de Contenson sounding		
GrN-13104	Tell Bouqras	6350±50	Reference: Akkermans 1981, 490		
Context: Niv 9					
Reference: Aurenche, Evin and Hours 1987, 703					
GrN-4818	Tell Bouqras	6190±60	GrN-8262	Tell Bouqras	6430±45
Context: Niv I (base)			Context: -4.5m		
Material: Wood charcoal			Material: Charcoal		
Reference: <i>Radiocarbon</i> 9, 1967, 128			Notes: Recut of de Contenson sounding		
			Reference: Akkermans 1981, 490		
GrN-4852	Tell Bouqras	6290±100	MC-2382	Tell el-Oueili	4030±100
Context: Niv I (top)			Context: Niveau 1 Sq.Z 27		
Material: Wood charcoal			Material: Wood charcoal		
Reference: <i>Radiocarbon</i> 9, 1967, 128			Reference: Thommeret 1984, 201		
GrN-4819	Tell Bouqras	6010±55	MC-2384	Tell el-Oueili	3700±90
Context: Niv II			Context: Niveau 3		
Material: Wood charcoal			Material: Grain		
Reference: <i>Radiocarbon</i> 9, 1967, 128			Reference: Thommeret 1984, 201		
			MC-2386	Tell el-Oueili	3850±100
			Context: Niveau 3, Sq Y 28		
			Material: Grain		
			Reference: Thommeret 1984, 201		
			MC-2385	Tell el-Oueili	4220±90
			Context: Niveau 3, Sq. Y 28		
			Material: wood charcoal		
			Reference: Thommeret 1984, 201		

MC-2383	Tell el-Oueili	4240±90	GrN-9833	Tell es-Sinn	6700±50
Context: Niveau 3, Sq. Y 28			Context: Level XIV		
Material: Wood charcoal			Reference: Roodenberg, 1979-80		
Reference: Thommeret 1984, 201					
LoD-184	Tell el-Saadiya	3829±255	GrN-2660	Tell Halaf	5620±35
Reference: Koszowski pers comm			Context: Hearth above Altmonochrome		
			Reference: <i>Radiocarbon</i> 6, 355		
LoD-183	Tell el-Saadiya	4122±270	Tk-803	Tell Kashkashok	5780±90
Reference: Koszowski pers comm			Context: Level 3		
			Notes: G/11 hearth		
P-857	Tell es-Sawwan	4858±82	Reference: Matsutani 1991, 99		
Context: Level I			Tk-802	Tell Kashkashok	4340±220
Material: Wood charcoal			Context: Level 4		
Reference: <i>Radiocarbon</i> VII, 1965, 190			Notes: P9 hearth		
			Reference: Matsutani 1991, 99		
P-855	Tell es-Sawwan	5506±73	Tk-859	Tell Kashkashok	5930±110
Context: Level I			Context: Level 3		
Material: Wood charcoal			Notes: E/6 fill of bin		
Reference: <i>Radiocarbon</i> VII, 1965, 190			Reference: Matsutani 1991, 99		
BM-1435	Tell es-Sawwan	5065±66	Tk-860	Tell Kashkashok	5540±110
Context: Level II/III, Sq. c/15 j			Context: Level 3		
Material: Wood charcoal			Notes: E/7 fill of bin		
Reference: <i>Radiocarbon</i> 23/3, 1982, 247			Reference: Matsutani 1991, 99		
CU-180	Tell es-Sawwan	5290±150	IGAN-772	Tell Magzeliyah	6060±50
Context: Level III			Context: Level 10		
Material: Charcoal lump			Notes: Cold fraction		
Notes: Duplicate of P-856			Reference: Bader 1989, 314		
Reference: <i>Radiocarbon</i>					
Pr-180	Tell es-Sawwan	5292±146	BM-1458	Tell Madhur	3620±60
Context: Level III			Context: Sq. 5Fa		
Reference: Silar 1981, 151			Material: Burnt grain		
			Reference: <i>Radiocarbon</i> 24, 248		
P-856	Tell es-Sawwan	5349±86	GrN-16804	Tell Sabi Abyad	5025±30
Context: Level III			Context: Level 1		
Material: Wood charcoal			Material: Burnt grain		
Reference: <i>Radiocarbon</i> 7, 1965, 190			Reference: Akkermans 1990, 114		
BM-1438	Tell es-Sawwan	5030±59	GrN-16800	Tell Sabi Abyad	5055±30
Context: Level III, Sq. c/15 i			Context: Level 2		
Material: Wood charcoal			Material: Charcoal		
Reference: <i>Radiocarbon</i> 23/3, 1982, 247			Reference: Akkermans 1990, 114		
BM-1434	Tell es-Sawwan	5119±66	GrN-16802	Tell Sabi Abyad	5115±30
Context: Level III, Sq. d/15 i			Context: Level 3		
Material: Wood charcoal			Material: Burnt seeds		
Reference: <i>Radiocarbon</i> 23/3, 1982, 247			Reference: Akkermans 1990, 114		
BM-1437	Tell es-Sawwan	5087±69	GrN-16801	Tell Sabi Abyad	5515±35
Context: Level IIIA, Infill of 441			Context: Level 3		
Material: Wood charcoal			Material: Burnt seeds		
Reference: <i>Radiocarbon</i> 23/3, 1982, 247			Reference: Akkermans 1990, 114		
BM-1436	Tell es-Sawwan	5102±57	UtC-1008	Tell Sabi Abyad	4980±80
Context: Level IIIA, Infill of 477			Context: Level 4		
Material: Wood charcoal			Material: Charcoal		
Reference: <i>Radiocarbon</i> 23/3, 1982, 247			Reference: Akkermans 1990, 114		
GrN-9831	Tell es-Sinn	6220±100	GrN-16803	Tell Sabi Abyad	5125±25
Context: Level XIII			Context: Level 4		
Reference: Roodenberg, 1979-80			Material: Burnt seeds		
			Reference: Akkermans 1990, 114		

UtC-1009	Tell Sabi Abyad	5130±80	P-1498	Tell Uqair	4649±107
Context: Level 5			Context: Building A		
Material: Burnt seeds			Material: Shell		
Reference: Akkermans 1990, 114			Reference: <i>Radiocarbon</i> 15, 1973, p.372		
GrN-16805	Tell Sabi Abyad	5195±30	Tk-24	Telul eth-Thalathat	5570±120
Context: Level 5			Context: Level XV		
Material: Burnt wood			Material: Wood and grass charcoal		
Reference: Akkermans 1990, 114			Reference: <i>Radiocarbon</i> 11, 1969, 513		
UtC-1010	Tell Sabi Abyad	4720±100	Tk-198	Telul eth-Thalathat	5850±80
Context: Halaf, NE mound			Context: Level XV		
Material: Burnt wood			Reference: <i>Radiocarbon</i> 11, 513		
Reference: Akkermans 1990, 114					
UtC-1011	Tell Sabi Abyad	5200±90	Tk-199a	Telul eth-Thalathat	4390±390
Context: pre-Halaf NE mound			Context: Level XVI		
Material: Burnt wood			Reference: Fukai and Matsutani 1981, 65		
Reference: Akkermans 1990, 114					
UtC-1012	Tell Sabi Abyad	5220±90	Tk-199b	Telul eth-Thalathat	4730±290
Context: pre-Halaf NE mound			Context: Level XVI		
Material: Charcoal			Reference: Fukai and Matsutani 1981, 65		
Reference: Akkermans 1990, 114					
GrN-16806	Tell Sabi Abyad	5275±30	Tk-23	Telul eth-Thalathat	5410±100
Context: pre-Halaf NE mound			Context: Level XVI, entrance of house		
Material: Charcoal			Material: Burnt grass		
Reference: Akkermans 1990, 114			Reference: <i>Radiocarbon</i> 11, 1969, 513		
K-981	Tell Shimshara	8080±160	P-1497	Tepe Gawra	3837±72
Context: Level 10			Context: Level XII		
Material: Chaff in a sherd			Material: Earth		
Reference: <i>Radiocarbon</i> 10, 1968, 323			Reference: <i>Radiocarbon</i> 15, 1973, 372		
K-972	Tell Shimshara	5870±150	P-1494	Tepe Gawra	5052±82
Context: Level 11			Context: Level XIX		
Material: Chaff in a sherd			Material: Ash		
Reference: <i>Radiocarbon</i> 10, 1968, 323			Reference: <i>Radiocarbon</i> 15, 1973, p.372		
K-951	Tell Shimshara	5990±150	P-1496	Tepe Gawra	4041±72
Context: Level 13			Context: Level XVII		
Material: Chaff in a sherd			Material: Earth		
Reference: <i>Radiocarbon</i> 10, 1968, 323			Reference: <i>Radiocarbon</i> 15, 1973, p.371		
K-960	Tell Shimshara	5350±150	C-817	Tepe Gawra	3450±325
Context: Level 9			Context: Level XVII/XVIII		
Material: Chaff in a sherd			Material: Ash		
Reference: <i>Radiocarbon</i> 10, 1968, 323			Notes: Average of 2 dates		
			Reference: Libby 1955, 82-3		
IGAN-769	Tell Sotto	5520±60	P-1495	Tepe Gawra	4470±61
Context: Level 1-2			Context: Level XVIII		
Notes: Cold fraction. Duplicate of IGAN-774			Material: Burnt earth		
Reference: Bader 1989, 314			Reference: <i>Radiocarbon</i> 15, 1973, p.372		
IGAN-774	Tell Sotto	5200±50	Le-1070	Yarim Tepe I	5090±100
Context: Level 1-2			Context: Level 7		
Notes: Cold fraction. Duplicate of IGAN-769			Reference: Merpert, Munchaev and Bader 1976, 43		
Reference: Bader 1989, 314					
M-1844	Tell Turlu	4480±220	Le-1086	Yarim Tepe I	5200±90
Context: Mixed by accident Halaf/Ubaid			Context: Level 7		
Material: Ash			Reference: Merpert, Munchaev and Bader 1976, 43		
Reference: <i>Radiocarbon</i> 14, 1972, 191					
			Le-1015	Yarim Tepe II	4210±130
			Context: Level 3		
			Reference: Munchaev and Merpert 1981, 266		

Le-1012 Yarim Tepe II 5220±180
Context: Level 3
Reference: Munchaev and Merpert 1981, 266

Le-1173 Yarim Tepe II 4160±110
Context: Level 6
Reference: Munchaev and Merpert 1981, 266
Le-1172 Yarim Tepe II 4480±80
Context: Level 6
Reference: Munchaev and Merpert 1981, 266

Le-1174 Yarim Tepe II 4490±80
Context: Level 6
Reference: Munchaev and Merpert 1981, 266

Le-1211 Yarim Tepe II 4550±100
Context: Level 6
Reference: Munchaev and Merpert 1981, 266

Le-1212 Yarim Tepe II 4450±120
Context: Level 7
Reference: Munchaev and Merpert 1981, 266

SOAN-1291 Yarim Tepe II 4710±40
Context: Level 8
Reference: Munchaev and Merpert 1981, 266

Le-1011 Yarim Tepe II 4840±180
Context: Level 8
Reference: Munchaev and Merpert 1981, 266

Appendix D

Arpachiyah Burnt House

Small Finds Catalogue

Note

Where ever possible the Arpachiyah small finds have been located in museums, recorded in detail and, where necessary, re-drawn. However, in cases where no museum is listed, the objects have not yet been traced. Also a considerable number of the objects in the Iraq Museum were not available for examination. In both these cases Mallowan's original small finds record, now in the British Museum, has been used as the primary source of details supplimented by the publication of the site.

Abbreviations

M & R: Mallowan and Rose 1935

I of A: Institute of Archaeology, London

BM: British Museum

IM: Iraq Museum

D = Diameter L = Length

Ht = Height

Th = Thickness B = Breadth

Polychrome Pottery

A512

Red & black paint. Buff fabric. Both incised and decorated. Pieced together from frags scattered in TT5 & TT6.

Ht 50mm

Museum: Baghdad

Illustration: M&R PL.XX,a

Scale 1:8



A528

Red & black & white paint, grey carbonised fabric and a buff slip.

Burnt house

Ht 55?mm

Rim D 250mm

Museum: Baghdad

IM 14734

Illustration Fig. 10.3

Scale 1:8



A529

Red & black & white paint. Plate frag. Buff slip. Int: stippled circles on rim. Band of black chequerboard, red diagonals. Cent flower black & white. Ext: checks.

Burnt house

Ht 72mm Rim D 250mm Base D 106mm

Museum: British Museum 127504

Illustration Fig. 10.4

Scale 1:8



A530

Red & black paint with grey, carbonised fabric. Bow rim jar. Quatrifoils in black w. red infilling on neck. Belly has red cables alternating with horizontal lines with vertical hatching between. See original record for rest of decor.

Burnt house

Museum: Baghdad IM 14765

A739

Black & light red paint with pink buff fabric.

Near complete. Not damaged by fire (M&R, 118) Burnt House

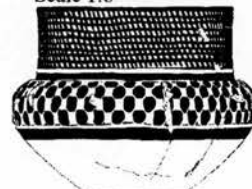
Ht 145mm Rim D 145mm

Museum: Baghdad

IM 14736

Illustration: M&R PL.XX,b

Scale 1:8



A745

Red & black paint with greenish buff fabric. Near complete. Little burnt. Burnt house (?)

Ht 23mm Rim D 140mm

Base D 50mm

Museum: British Museum

127585

Illustration: M&R PL.XVII,b

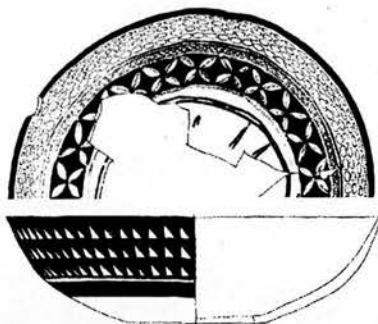
Scale 1:8



A746

Brownish buff
& red paint with
buff fabric,
Near complete.
Burnt Room
Ht 83mm
Rim D 290mm
Base D 80mm
Museum:
Baghdad IM
17836
Illustration:
M&R Pl.XVI

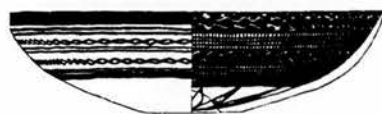
Scale 1:8



A750

Red & black paint
with a reddish buff
fabric. Near
complete. Burnt.
Burnt House. E end
of long room on N
side of TT6

Scale 1:8

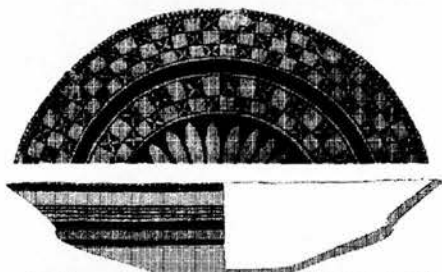


Where unburnt fabric is light orange buff. Paint seems to
have been dark orange and a sort of purple orange. Very well
made and decoration.
Ht 70mm Rim D 297mm Th (Rim) 4.5mm Th (Base) 7mm
Museum: British Museum 127507
Illustration: M&R Pl.XIII

A748

Red & black & white paint with a pinkish buff fabric, Near
complete. Little burnt Burnt room. Khallaf's room.
Ht 65mm Rim D 320mm
Museum: Baghdad IM 17837
Illustration: M&R Frontispiece Pl.XIX,1

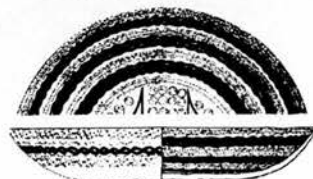
Scale 1:8



A751

Lustrous red & black
paint on orange red
slip. Complete. Badly
burnt. Burnt Room.
Ht 35mm Rim D
235mm
Museum: Baghdad
IM 14733
Illustration: M&R Pl.XVIII Pl.XXII,10

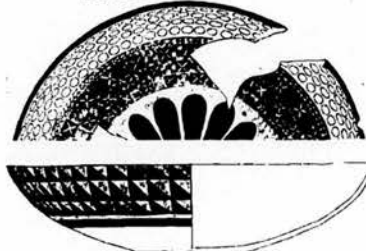
Scale 1:8



A752

Black & red &
white paint with a
light buff fabric.
Near complete.
Burnt House.

Scale 1:8

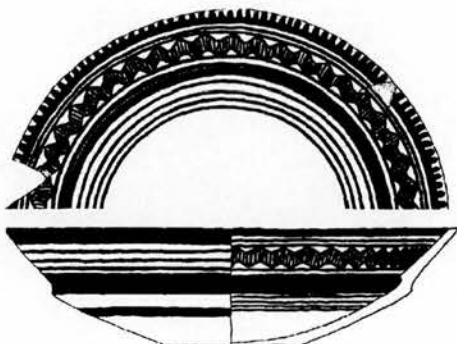


Very fine; the
vessel is close to
being exactly
circular with
exactly concentric
circles of
decoration.
Original fabric seems to be light buff with no visible grits.
The paint colours before burning seem to have been orange-
red, brown and white.
Ht 67mm Rim D 275mm Th (Rim) 4mm Th (Base) 6mm
Museum: British Museum 127508 1934.2.10, 8
Illustration: M&R Pl.XV

A749

Red & black paint. Near complete. Heavily burnt. Burnt
House
Ht 93mm Rim D 340mm
Museum: British Museum 127502
Illustration: M&R Fig.53,4

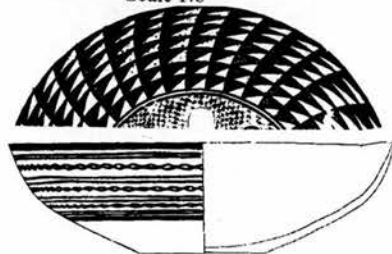
Scale 1:8



A753

Red & black
paint with
deep pinkish
buff fabric.
Complete.
Burnt. Burnt
House
Ht 90mm
Rim D 295mm
Base D 96mm
Museum: Baghdad IM 14753
Illustration: M&R Pl.XIV

Scale 1:8



A755

Red & black paint with buff fabric.
Near complete. Burnt House
Ht 20mm Rim D 107mm
Museum: Baghdad IM 14724
Illustration: M&R Pl.XVII,a

Scale 1:8



Other Pots

A099a

Red paint and buff fabric. Zoomorphic pot in shape of pig or hedgehog. Two back legs are missing, snout missing. In Burnt house or adjoining burnt house.

L 190mm Ht 120mm

Museum: Baghdad IM 14751 & 1497

Illustration: M&R Pl.V,a

c.Scale 1:8



A289

Red paint with pink or buff fabrics. Broken and mended in antiquity. Full room Burnt House

Rim 160x220mm

Ht 72mm

Museum: British Museum 127529

Illustration: M&R Fig.69,5

Scale 1:8



A487

Drab fabric, unpainted.

Ht 48mm

Museum: Baghdad IM 14832

Illustration: M&R Fig.41,10

Scale 1:8



A491

Red paint with brownish fabric. Burnt House

Ht 47mm

Museum: British Museum 127630

Illustration: M&R Fig.42,11

Scale 1:8



A492

Buff fabric, medium hard fired with sparse fine black grits and sparse medium white grits. It is not burnt. Unpainted? Rather roughly made with irregular and rather rough interior surface; the exterior is smoothed but not very well. There are clear finger marks around the exterior edge of the base. There are traces of brown paint on the exterior, perhaps from a wash or slip but the surface is very little worn so it seems unlikely that it was ever extensive or better decorated; could be accidental or post-firing deposition. Burnt House

Ht: 71mm Rim D 35mm

Museum: British Museum 127633

Illustration: M&R Fig.43,12

Scale 1:4



A493a

Unpainted. Brown grey to black fabric with very few visible inclusions; fine micas and fine grey and white grits. Well smoothed surface. It is complete, apart from a chipped rim, but has been restored from several sherds.

Burnt. Burnt house. Location on pot

Ht 50mm Rim D 25mm

Museum: Baghdad IM 14852

Illustration: M&R Fig.43,10

Scale 1:8



A505b

Red paint with light red fabric

Ht 52mm

Museum: Baghdad IM 14849

Illustration: M&R Fig.42,12

Scale 1:8



A515

Sepia to orange red

coloured on buff to

reddish yellow

fabric. Burnt.

Burnt house

Ht 95mm

Rim D 260mm

Museum: British

Museum 127511

Illustration: M&R

Fig.56,2

Scale 1:8



A516

Very heavily burnt. Burnt house. The

original surface appears to have been

burnt. Sparse medium white grits are

visible on the surface and there has been

occasional spalling. The original paint

colour may have been dark grey but it has faded badly on the unpainted portion. The burnt area of the vessel is dark brown grey with the area where the paint protected the surface before being lost being a lighter brown grey.

The pot must have been tilted at the time of the fire so the lower part was protected from the fire. It does not naturally tilt at this angle and it therefore must have either been leaning against something or, more probably, sitting in some deposit (c.1cm deep) which both stopped it falling and offered some protection from the fire. Comparing the burnt and unburnt portions of the vessel it is apparent that the refiring was not at a very high temperature but it was heavily reducing.

In the vessel in the BM were chunks of charcoal lying loose. This is clearly wood charcoal, probably a c.2cm cube originally. There is also a matchbox with c.30 charred grains. Ht: 88mm Rim D 80mm

Museum: British Museum 127554 1934 2.10 54

Illustration: M&R Fig.59,5

Scale 1:8



A517

Heavily burnt. Burnt house. Squat jar

with short neck. Probably originally a

buff fabric with sparse fine white

inclusions. Now grey buff to dark grey

on the surface. It was clearly lying tilted

prior to firing and has therefore suffered

differential firing diagonally across its surface. The rim is

extensively damaged, some of which certainly occurred prior to the fire. There is a burnt residue on the interior of the pot.

Ht: 84mm Rim D 70mm

Museum: I of A 53/300

Illustration: M&R Fig.64,4

Scale 1:8



A518

Scale 1:8

Part missing. Badly burnt. Burnt house
Small, well made bowl. Dark yellow
buff fabric, ranging to grey brown to dark grey due to re-
burning in the fire. Inclusions are quite dense fine black grits
with occasional large grey and red grits up to 2mm long. The
surface is rather rough and gritty but is carefully finished.
The exterior dark brown paint is very abraded and obscured
by fire damage. There are traces of paint on the interior
which may represent some sort of band.

Ht 36mm Rim D 67mm Base D 27mm

Museum: Baghdad IM 14826

Illustration: M&R Fig.71,1;



A521

Scale 1:8

Black paint with yellow
fabric

Ht 76mm

Museum: Baghdad IM ?

Illustration: M&R Fig.58,2



A526

Black with grey fabric. Burnt champagne vase fragment.
Cup decorated with dotted circles

Museum: I of A?

A527

White on black fabric. Frag. Cream slip.
Museum: ?

A535

Scale 1:8

Incomplete & very badly burnt.
Probably painted but too burnt to see.

Burnt house

Ht 80mm

Museum: I of A 53/???



A740

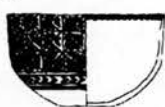
Scale 1:8

Dark red turned to black paint on
buff turned to grey fabric. Near
complete. Cream slip. Badly burnt.
Burnt House.

Ht 95mm Rim D 165mm

Museum: British Museum 127530

Illustration: M&R Fig.60,5



A741

Scale 1:8

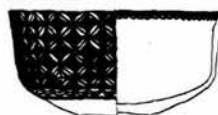
Red brown paint. Cream
slip. Burnt house.

Rim D 170mm Ht 85mm

Museum: Baghdad IM

15338

Illustration: M&R Fig.60,3



A742

Scale 1:8

Black & bright red paint,
pinkish buff fabric. Near
complete. Burnt house.

Paint is basically a dark
brown matt paint but on the
exterior it is fired to a
brighter red colour, possibly
due to differential access to
oxygen

rather than due to deliberate polychrome. Lightly burnt.

Ht 42mm Rim D 160mm Th (body) 5mm

Museum: British Museum 127583 1934 2.10, 83

Illustration: M&R Fig.57,1



A743

Smaller duplicate of A742. Burnt house

Ht 32mm Rim D 140mm

Museum: Baghdad IM 14726

A744

Scale 1:8

Reddish black paint, pink buff fabric.

Complete. 2 lug handles. Burnt room

Ht 58mm Rim D 70mm

Museum: Baghdad IM 14760

Illustration: M&R Fig.64,2 Pl.XIX,8



A747

Scale 1:8

Lustrous light red paint,
pinkish buff burnished slip.

Little burnt. Burnt room;

same end of room as A748.

Ht 55mm Rim D 190mm

Museum: Baghdad IM

14741

Illustration: M&R Fig.53,1



A754

Scale 1:8

Bright red paint,
burnished pink surface.

Near complete. Burnt
room

Ht 70mm Rim D 230mm

Museum: Baghdad IM 14720

Illustration: M&R Fig.55 Pl.XIX,4



A763

Scale 1:8

Red paint. Near complete. Cream
slip. Burnt room

Ht 50mm Rim D 160mm

Museum: Baghdad IM 14762

Illustration: M&R Fig.58,1



A768

Scale 1:8

Dark red paint, buff fabric. Near
complete. Burnt house.

Ht 85mm Rim D 81mm

Museum: British Museum 127564

Illustration: M&R Fig.59,1



A769

Red paint, buff fabric. Near complete. Burnt house.
Ht 70mm Rim D 143mm
Museum: I of A 53/304
Illustration: M&R Fig.60,4

Scale 1:8



A802

Dark drab w carbonised core. Unpainted. Burnt house.
Ht 72mm
Museum: Baghdad IM 14821
Illustration: M&R Fig.79,6

Scale 1:16



Stone Vessels

A912

Dark grey to cream mottled limestone. Champagne vase frag. Burnt house. The base of the vase is circular but the upper bowl section is oval.
Ht ca.150mm Rim ca.130x80mm
Museum: Baghdad IM 14858

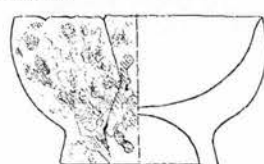
A923

Black steatite. Trough type. Burnt house
L 17mm B 10mm Ht 11mm
Museum: Baghdad IM 15032
Illustration: M&R Pl.X,a

A409

Pink and white mottled limestone.
Ht 118mm
Museum: Baghdad IM 14889
Illustration: M&R Pl.V,d
Fig.44,16

Scale 1:8



A411

Obsidian. Stated to be probably broken in manufacture but there appears to be no indication of this. The breakage is more likely to have occurred in the destruction of the Burnt House or subsequently.

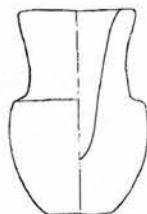
The exterior has been pecked to shape, giving a large number of twinkling facets. There are flattened areas visible beneath this on two sides, suggesting that it may have been made from the largest piece of obsidian available. The centre has been bored out and the rim ground down to be flat.

Ht 160mm

Museum: Baghdad IM 14860

Illustration: M&R Pl.V,c and Fig.44,15

Scale 1:8



A412

Black and white diorite
Ht 57mm
Museum: ?
Illustration: M&R Pl.X,b,
Fig.44,13

Scale 1:8



A413

Small and beautifully made. The stone is very hard and fine grained, yellow buff with brown veining and with a white band running across it. The exterior is highly polished while the interior is smoothed but not so highly polished. The interior retains concentric ridges from when the interior was ground out. Burnt room
Ht: 24mm Rim D 35mm
Museum: British Museum 127793
Illustration: M&R Fig.44,2

Scale 1:2



A414

Viened calcite. Contained ashes. Burnt room. Almost certainly stone, but it very hard to tell as it is burnt and encrusted all-over; if stone it is very finely and evenly worked. The colour ranges from cream to purple brown. Chipped around the rim, probably at least partly in use. As found, it was broken into 3 pieces and a small piece of the rim is missing. In it, covering most of the base, is a burnt substance, quite thick in places; dark grey to black in some places, buff in others. This is presumably the original contents.
Ht: 23mm Rim D 58mm Base D 18mm Wall Th 4mm
Museum: British Museum 127790 1934 2.10 523
Illustration: M&R Fig.44,1

Scale 1:2



A415

Dark grey limestone
Ht 26mm
Museum: Baghdad IM 14823
Illustration: M&R Fig.44,3

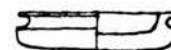
Scale 1:8



A420

Black steatite
Ht 8mm Rim D 30mm
Museum: ?
Illustration: M&R Fig.44,6

Scale 1:2

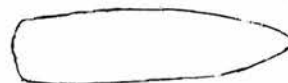


Stone Axes

A663

Dark grey stone. Working edge seems lightly used. Burnt house Stone axe, made from a dense fine grained grey stone. It has probably been made on a pebble of the correct shape since the butt end is rather irregular. It has been heavily pecked and ground smooth. The working edge is very smooth and sharp with only a few small chips along it; ie used but not very much. The sides have been shaped to have rather sharp corners. There is no indication of hafting.
L 113mm B 37mm Th 11mm
Museum: Baghdad IM 14883
Illustration: M&R Pl.XII,b

Scale 1:3



A664

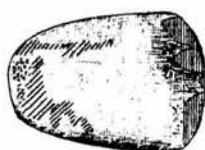
Black stone. Probably once hafted. Working edge chipped and worn. Burnt house Stone axe made from a dense, very dark grey stone. Manufactured by pecking, then grinding to a smooth surface. The edge is well chipped through use and striations parallel to the edge may indicate resharping. The butt and sides have a high black lustre; probably a black deposit on the surface (?bitumen) heavily polished so that it stained the stone. This is almost certainly the result of hafting and this is probably the axe found with a carbonised shaft and illustrated in M & R fig. 51.12.

L 78mm B 59mm Th 27mm

Museum: Baghdad IM 14884

Illustration: M&R Pl.XII,b

Scale 1:3



A665

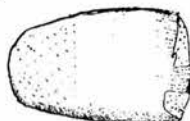
Black stone Burnt house Stone axe made from a hard, fine grained grey stone. It is well made and smoothed; the shape suggests that it may have been shaped from a natural pebble not much larger than itself. The cutting edge is very worn and heavily chipped, although it looks to have been blunt prior to the chipping. Both sorts of damage may have occurred in antiquity. The butt of the axe is notably darker and probably indicates an area of hafting.

L 70mm B 43mm

Museum: Fitzwilliam E.216.1934

Illustration: M&R Pl.XII,b

Scale 1:3



A666

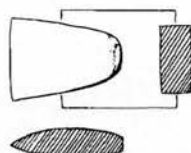
Small stone axe made from a hard, very fine grained stone, dark green in colour, but where thin, a translucent mid-green. It is very finely made with very sharp corners and edge. Unlike many axes it is almost exactly symmetrical and it is very highly polished. There is a light chipping on the butt and the cutting edge is fractionally chipped (seen at x8 magnification only) but whether the latter is through very light use or as a result of manufacture is uncertain. Burnt house.

L 45mm B 37mm Th 11mm

Museum: British Museum 127765

Illustration: M&R Pl.XII,b

Scale 1:3



A667

Black stone. Top chipped. Burnt house

L 36mm B 24mm

Museum: ?

Illustration: M&R Pl.XII,b

A668

Black stone. Lower corner missing. Burnt house

Museum: ?

Illustration: M&R Pl.XII,b

Figurines

A920

Scale 1:2

Grey limestone. Female. Burnt house.

L 39mm B 20mm

Museum: British Museum 127717

Illustration: M&R Pl.X, Fig.52,3



A921

Alabaster. Male. Burnt house

L 17mm B 8mm

Museum: Baghdad IM 15015

Illustration: M&R Pl.X

A941

Scale 1:2

Black, buff. Bird. Burnt house.

Museum: Baghdad IM 15050

Illustration: M&R Fig.46,3



A942

Sundried clay. Bird. Loose in soil of TT6

Museum: British Museum 127710

Illustration: M&R Fig.47,24

Beads

A587

Black steatite. Duck. Burnt room - 'Girgis' room'

L 17mm B 12mm

Museum: ?

A861

Black steatite. Double axe.

Burnt house

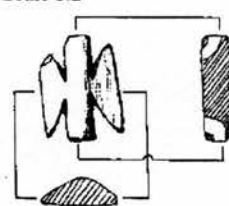
Double axe bead made from black stone. Carefully made and well polished. It is pierced with a right-angled hole at the top and bottom of the central shaft. One of these, at the top in the drawing, was broken and the broken edges are smoothed, probably indicating continued use after the damage was suffered.

L 27.5mm B 20.4mm Th 6.1mm

Museum: British Museum 127677

Illustration: M&R Pl.VI,b, Fig.51,5

Scale 1:2



A862

Black steatite. Double axe. Burnt room

L 27mm B 24mm

Museum: Baghdad IM 15004

Illustration: M&R Pl.VI,b

A863

Dark greenish grey steatite. Double axe. Burnt room

L 37mm B 40mm

Museum: Baghdad: IM 15005

Illustration: M&R Pl.VI,b

A864

Dark greenish grey steatite. Butterfly shaped. Burnt house
L 26mm Br 30mm
Museum: British Museum 127676
Illustration: M&R Pl.VI,b

A865

Dark greenish grey steatite. Butterfly. Burnt room
L 44mm B 40mm
Museum: Baghdad IM 15006
Illustration: M&R Pl.VI,b

A866

Scale 1:2

Black steatite. Circular with roll handle. Burnt house. A flat disc with a pierced knob on one surface made from a black stone, almost brown-black. The edges are bevelled. The face is very smooth and featureless. There upper surface is also well smoothed but there are some finishing marks around the knob. Although very carefully made and finished, no attempt has been made to make it into a seal.
D 27mm Th 3.2mm Ht of knob 4.6mm
Museum: British Museum 127680
Illustration: M&R Pl.VI,b

**A870**

Scale 1:2

Black steatite. Duck. 3+ items. Burnt room; BM no. 12767
L 18mm B 12mm
Museum: Baghdad (3) BM (1) IM 15036
Illustration: M&R Pl.VI,b, Fig.51,7

**A871**

Black steatite. Duck. Burnt house
L 9mm B 12mm
Museum: ?
Illustration: M&R Pl.VI,b

A872

Black steatite. Duck. Burnt room
Length: 12mm Breadth: 10mm
Museum: Baghdad IM 15040
Illustration: M&R Pl.VI,b

A873

Scale 1:2

Black steatite. Duck. Burnt room.
L 10mm B 10mm
Museum: Baghdad IM 15044
Illustration: M&R Fig.51,8

**A875**

Black steatite. Lozenge shaped with groove on one side. Burnt house
L 34mm B 32mm
Museum: British Museum 1278181
Illustration: M&R Pl.VI,b, Fig.51,19

A877

Dark greenish grey carnelian ? or steatite. Ring beads. Half ovoid with groove down one side. Burnt room
L 20mm B 18mm
Museum: Baghdad IM 15045
Illustration: M&R Pl.VI,b

A878

Black terracotta. Burnished & conical. Burnt house
L 16mm H 19mm
Museum: ?
Illustration: M&R Pl.VI,b

A879

Mostly black & grey steatite. 5 ill; 14 total. Lentoid, lozemge, ring, flattened double conoid. Burnt house
Museum: ?
Illustration: M&R Pl.VI,b

A880

Black & grey steatite 13 beads. Barrel lozemge, ring, circular. Burnt room
Museum: Baghdad IM 15088
Illustration: M&R Pl.VI,b

A905

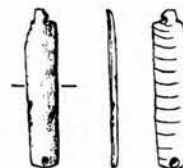
Obsidian links. At the end of a single room.
Museum: ?
Illustration: M&R Pl.XI,b

A906

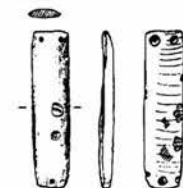
All Scale 1:3

Obsidian links. 19 obsidian links. Burnt house. All at one end of single room. The links are all made from long, flat blades. The cores from which they have been struck must have been polished to a smooth and glossy surface before the blades were detached. The polishing striations are sufficiently fine to be invisible to the naked eye but are visible under x8 magnification. The backs of the blades have been retouched to reduce the curvature on the blade, the amount of retouch ranges from light to very heavy depending on the original curvature. In some cases the backs have also been ground down. The holes are biconically pierced but mainly from the back. The unillustrated links are very similar to the illustrated or were not available for study. All obsidian is green except where specified.
Museum: Baghdad IM 15056-15075
Illustration: M&R Pl.XI,b; *The Land between Two Rivers* 1985, 353

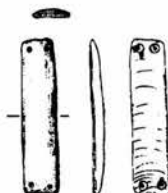
a



b. Unusual in this group as there are two perforations at one end and only one at the other.
L 62mm B 15mm Th 5mm



c L 61mm B 14mm Th 5mm

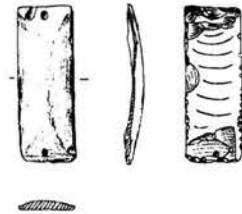


d

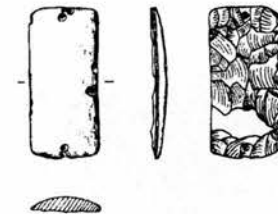
e L 62mm B 16mm Th 4mm



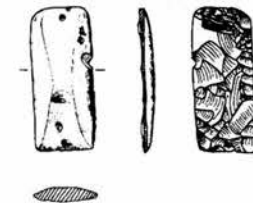
f L 62mm B 22mm Th 3mm



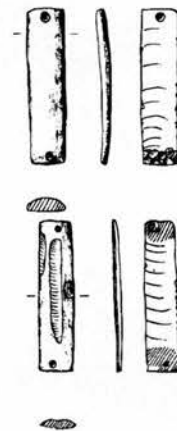
g L 61mm B 27mm Th 6mm



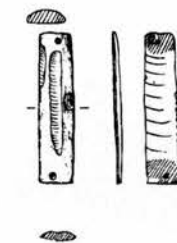
h
i L 58mm B 25mm Th 6mm



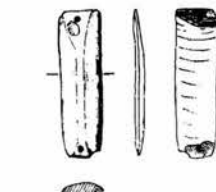
j Grey obsidian
L 57.5mm B 24mm Th 5mm
k L 59mm B 22mm Th 4mm
l 62mm B 15mm Th 5mm
Museum: Baghdad IM 15068



m L 59mm B 14mm Th 3mm
Museum: Baghdad IM 15069



n L 61mm B 12mm Th 4mm
Museum: Baghdad IM 15070
o Unusual in this group as there are two perforations at one end and only one at the other.
L 63mm B 13mm Th 3mm
Museum: Baghdad IM 15071
p L 57mm B 17mm Th 4mm
Museum: Baghdad IM 15072



A909

Obsidian & cowrie shells necklace. see M&R, 97 for description; Five obsidian, 3 pebble & 16 cowrie. Burnt house.

Numbering below is taken as strung in the BM starting with the stone pendent to the top and running clockwise. Museum: British Museum 127814 1934 2.10 547 Illustration: M&R Pl.XI,a

A909a

Scale 1:3

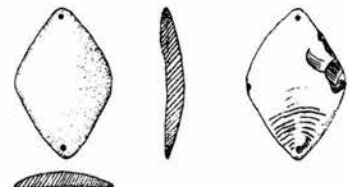
Stone pendent. Hard, fine-grained grey stone. Fine linear abrasions are visible on one face which indicate some shaping but it seems likely that the pebble is at least partly natural in shape. The perforation is biconical and rough. L 38mm B 15mm Th 6mm



A909b

Scale 1:3

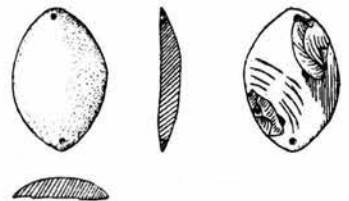
Obsidian link. Green obsidian. The domed surface is completely smooth and glossy with no sign of working. The reverse shows some sign of being a large flake with some retouch on one edge. There is a shallow bulb of percussion on one edge. The edges of the link have been ground heavily to shape. L 59mm B 38mm Th 6mm



A909f

Scale 1:3

Obsidian link made from green obsidian. Similar to A909b except more retouch and some heavy grinding on the reverse. L 58mm B 38mm Th 8mm



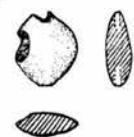
A909j

Obsidian link. Very similar to A909f. Green obsidian. Very clear bulb of percussion on reverse with no retouch or grinding. The edges are nicely ground and smoothed. L 53mm W 36mm Th 8.5mm

A909m

Scale 1:3

Grey stone similar to A909a. There are few apparent signs of manufacture but there is heavy polish on the edges indicating some shaping has occurred. It has been pierced along its length with a cylindrical hole (ie, as reconstructed, it is strung differently from the other beads in the necklace). Both ends are damaged, probably in antiquity. L 29mm B 25mm Th 9mm



A909p

Scale 1:3

Obsidian link. The obsidian is too thick to show the original colour of the stone. The face is smoothed. It is very similar to A909b and A909f but the reverse has been ground over most of its area to be completely flat. Part of both ends are broken, particularly the upper one, which is very fresh (probably Mallowan).
L 32mm B 29mm Th 7mm

**A909t**

Obsidian link (undrawn and very similar to A909f) of green obsidian. The reverse has been lightly abraded at either end to flatten it and the edges have been smoothed off although not greatly ground.

A909x

Obsidian link (undrawn but very similar to A909b) of green obsidian. The reverse has been retouched at the two unpierced corners to flatten it. The edges have been ground and smoothed down.

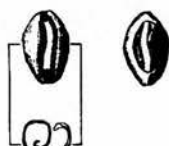
A909 c & others to w

16 shell beads made by slicing the back from a cowrie? shell and smoothing the edges.

Dimensions

	Len	Wh	Ht
c	23	14	8
d	26	16	7
e	23	14	5
g	27	19	9
h	9	18	8
i	20	15	7
k	24	19	7
l	20	13	7
n	21	13	7
o	20	13	7
q	21	14	8
r	22	14	7
s	24	15	6
u	32	25	7
v	25	16	7
w	29	17	6

q 1:3



u 1:3



Small quantities of deposit are contained in some of the shells which should reflect the TT6 matrix in which they lay. The deposits vary from a light brown clay (?= tauf wash) to ash and burnt ashy material.

A914

Frit. Mostly small frit ring beads. Burnt house
Museum: Baghdad IM 15090

A919

Mixed group w small frit ring beads, some shell, one reddish brown stamp sherd. Burnt house
Museum: ?

A1002a

Scale 1:2

Limestone cylinder bead, neatly made and finished with a cylindrical hole through the centre. Cream to very pale brown.

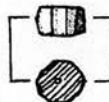
One of three beads lying in A414 and, if associated with it, from the Burnt House.

**A1002b**

Scale 1:2

A bead cut and ground down from a larger piece of pottery—probably a sherd of Halaf fabric. The fabric is red orange, well fired with sparse fine white inclusions. Neither surface shows any sign of decoration. The hole is biconically pieced and, though narrow in the centre, is markedly wider at the ends. The grinding used to finish this object has produced a faceted edge.

One of three beads lying in A414 and, if associated with it, from the Burnt House.

**A1002c**

Scale 1:2

Cylindrical clay bead, broken at one end. It is made from a dark brown fabric with a grey to dark grey surface, medium fired with no visible inclusions. The bead has been shaped round an object prior to firing. The surface is well smoothed. One of three beads lying in A414 and, if associated with it, from the Burnt House.

**Seals****A043**

Scale 1:2

Terracotta. Triangular with linear markings and two perforations.
B 14mm Ht 16mm

Museum: British Museum 127648

Illustration: M&R Fig.50,12 Pl.VIII,a

**A554**

Scale 1:2

Greenish grey limestone. Flat drop shaped. Linear markings with perforation in the middle. Incised on the slightly convex side.

Outside tholos(?)

L 30mm B 28mm Ht 4mm

Museum: Baghdad IM 15003

Illustration: M&R Pl.VIII,a

**A575**

Scale 1:2

Black steatite. Circular with perforated handle. Linear markings on both sides. Broken.

L 19mm Ht 3mm

Museum: I of A 53/473

Illustration: M&R Pl.VII,a



A860

Black steatite. Burnt house
L 19mm B 19mm
Museum: ?
Illustration: M&R Pl.VI,b

A867

Milky white marble(?)
Crescent with linear markings. Burnt house. Seal of a white stone, probably a fragment from a broken crescent. It is pierced at one end and is incised on one side.

Scale 1:2



There is no obvious pattern to the incisions or regular depth. It is polished very smooth, after the incisions were made and probably through extensive handling. The end away from the hole is broken but the broken area is also polished suggesting that it continued in use for some time after being broken.

L 16mm T 4mm

Museum: British Museum 127667 1934-2-10, 355

Illustration: M&R Pl.VI,b Fig.51,11

A868

Black steatite. Shield shaped with linear markings on the flat side. Burnt house
L 16mm B 12mm
Museum: BM 127663
Illustration: M&R Pl.VI,b

Scale 1:2

**A869**

Black steatite. Lozenge shaped with a x foot. Burnt room
L 25mm B 22mm Ht 7mm
Museum: Baghdad IM 15036
Illustration: M&R Pl.VI,b

A874

Brownish grey limestone or steatite (M&R state both). Linear markings on one side; convex the other. Burnt house. Seal made from black, relatively soft, stone, very highly polished with clear polishing facets on the blank face. The incisions are deep and neat. In the centre of the incised face all of the raised, central part of the design has been deliberately abraded away; approximately 1-2mm of material must have been removed. This must be deliberate, done by rubbing the seal face-down on an abrasive material.

Scale 1:2



L 12mm B 9mm

Museum: British Museum 127660 1934 2.10 348

Illustration: M&R Pl.VI,b, Fig.51,12

A876

Black steatite. Lozenge shape with groove on one side; linear markings on the other. Burnt room
L 14mm B 19mm
Museum: Baghdad IM ?
Illustration: M&R Pl.VI,b

A890

Dark grey (greenish) serpentine ? or stone. Flat double conoid with linear markings on one side. TT6 or F 0.9
L 21mm B 14mm
Museum: ?
Illustration: M&R Pl.VII,b

A892

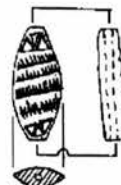
Black steatite. Drop shaped with linear markings on the underside. Burnt house
L 15mm B 13mm
Museum: BM 127659

Scale 1:2

A893b

Incised bead/seal made from yellow brown stone, perforated along its length. Its surface is smooth, and polished on the raised portions - notably along the ridge on the reverse and the ridges of the decoration, as though polished through wearing and long use. The decoration is deeply incised (up to 3mm).

Scale 1:2



Museum: British Museum BM nos. 127815-7 (1 TT6 Bh - not BM 127816)

Illustration: M&R Pl.VII,b

Sealings**A619**

Black sundried clay. 15 illustrated in M & R: 10 out of 19 total are in Baghdad. Double conoid, perf at both ends & containing string marks. Most stamp w linear marks of Halaf. Probably used to tie on labels and attached to pots in the store room. Burnt house. Burnt room. Not all the sealings are described because the details are lacking. See also Wickede 1990.

Largest 62x20mm Smallest 24x15mm

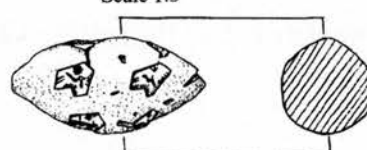
Museum: Baghdad (10) IM 15185

Illustration: M&R Pl.IX,b

A619a

Dark brown to black sundried clay; no visible inclusions and low but evenly fired. It is formed from a lump of clay pressed round a string or strings (2 strands enter but only 1 exits) in a double coneoid. It has 10 seal impressions, all from the same seal, all oriented the same way, and evenly spaced in pairs around the circumference.

Scale 1:3



Museum: BM 127693

Illustration: M&R Pl.IX,b

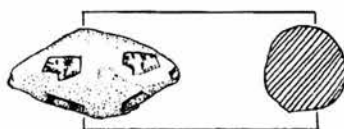
A619b

Very similar to A619b except that the seal was pressed around a 2 or 3 strand string. The fabric is dark brown with no visible inclusions. There are 8 impressions of the same seal as A619a evenly spaced in pairs around the circumference.

Museum: BM 127696

Illustration: M&R Pl.IX,b

Scale 1:3

**A619c**

Black sundried clay. Double conoid, perf at both ends & containing string marks. Same impressions as A619a and A619b Burnt house. Burnt room

Museum: BM 127701

Illustration: M&R Pl.IX,b

Scale 1:3

**A619d**

Half of a sealing wrapped round string impressions. Unclear impressions.

Museum: I of A

Museum Reg. Number: 53/461

A619f

Grey brown fabric with dense fine vegetable temper. Low fired. Formed around a two strand string. Only one surface, that drawn, is preserved with the rest broken off. There is a single seal impression, too faint to make out the design apart from two short lines. Burnt house. Burnt room

Museum: I of A 53/467

Scale 1:3

**A619e**

Buff fabric, black on surface, with no visible temper and lightly fired. A two strand string runs through the centre. It has been impressed nine times around its circumference by the same seal. The design is indistinct, the only visible part being a line running down the centre. It may be the impression of what has been termed a bead with a single linear groove (eg A875) rather than a conventional seal. Burnt house. Burnt room

Museum: I of A 53/967

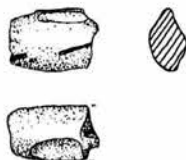
Scale 1:3

**A619g**

Lump of clay. Dark grey brown with no incisions and soft fired. Broken at one end. It is not formed around a string. There are two distinct chaff impressions and two possible seal impressions. These latter are very indistinct and may not be from seals. Burnt house. Burnt room

Museum: I of A 53/467

Scale 1:3

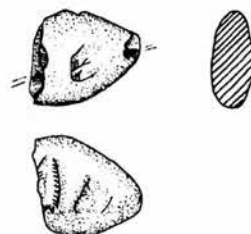
**A619h**

Lump of clay shaped round a 3? strand string. The clay is dark grey and has sparse calcite inclusions and some vegetable temper. It is impressed by four seals. Two are probably of the same seal. The other two are different and may both originate from a second seal; however, they are very indistinct.

Half the sealing is broken. This is certainly not the result of damage in excavation as the broken area is lightly worn but whether the break occurred prior to the destruction of the Burnt House is uncertain.

Museum: I of A 53/619

Scale 1:3

**A619i**

Sealing

Museum: Baghdad IM 15185

Illustration: von Wickede 1990, no.61

Scale 1:3

**A620**

Black sundried clay. 6 ill; 8 total. Disk shaped clay lumps stamped w Halaf seals. Probably lids of pots with pots discs in the necks. Burnt room.

Diams 30-46mm

Museum: Baghdad (4) BM (2) IM 15184 BM nos. 127698 & 127697.

Illustration: M&R Pl.IX,b

A620a

Dark brown to black fabric, medium fired. A sub-circular, flattened lump of clay. There are five deep seal impressions in the clay. They are probably two different seals which have been used; one for the upper three impressions the other for the lower two. The back is relatively smooth with no indication that it was used to seal anything—jar stopper, token?

L 48mm B 35mm Th 13mm

Museum: BM 127697 1934 2.10 355

Illustration: M&R Pl.IX,b

Scale 1:3

**A620b**

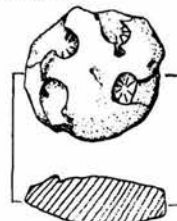
Very friable, low fired buff to brown fabric with vegetable temper and a few calcites. There are four circular seal impressions, all from the same seals. As with A620a there are no markings on the back.

L 40mm B 41mm Th 14mm

Museum: BM 127698

Illustration: M&R Pl.IX,b

Scale 1:3



A620c

Remains of a circular sealing. Orange buff fabric, no visible inclusions, soft fired and friable. The surface is dark brown the black.

There are two impressions on the upper surface. Both are shallow but are clearly Halaf style impressions and almost certainly from the same seal. Burnt room.

Museum: I of A 53/468

Illustration: M&R Pl.IX,b

Scale 1:3

**A620d**

Sealing with same impressions as on A619a-c

Museum: Baghdad IM 15184

Illustration: von Wickede 1990, no. 58

Scale 1:3

**A620e**

Sealing with same impressions as on A619a-c

Museum: Baghdad IM 15184

Illustration: von Wickede 1990, no. 59

Scale 1:3

**A620f**

Sealing

Museum: Baghdad IM 15184

Illustration: von Wickede 1990, no. 62

Scale 1:3

**Miscellaneous****A901**

Stone palette. Burnt house associated with lump of red ochre. Stone palette made from strikingly coloured stone; very colourful with grey to dark grey viens, orange to red brown viens and white viens running throughout the stone. It is finely ground with an even but not highly polished surface, possibly due to the nature of the stone. One end is broken.

L (frag) 80mm; B 55mm Ht (edge) 9mm Ht (centre) 4mm

Museum: BM 127786

Illustration: M&R Fig.52,4

Scale 1:4

**A903**

Blue grey veined limestone mace head.

Full room, burnt house

L 80mm Ht 70mm

Museum: Baghdad IM 14866

Illustration: M&R Pl.X,c; +BM

c.Scale 1:6

**A904**

Pumice & basalt or sandstone objects. 3 of them. 2 pumice 1 basalt (M&R, x) or sandstone (M&R, iv). Full room, burnt house

L 50-65mm B 40-50mm

Museum: Baghdad (2) BM (1) IM 14890 & 1489 BM no. 127728

Illustration: M&R Pl.X,d-g

A904a

Object carved from a very light, porous stone with many air pockets (I assume genuine pumice). The lower part is D-shaped in plan and it tapers slightly to a sheroid 'head'. The base is flat and the object sits steadily on it.

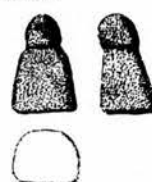
There is a slight ridge running vertically down the front of the head which may suggest a nose. It has been carefully made with roughly right-angled corners at the back.

D 28-34.5mm Ht 52mm

Museum: BM 127728

Illustration: M&R Pl.X, e

Scale 1:4

**A907**

Group of complete flint knives. Burnt house

Museum: ?

A908

Several obsidian blades; part exported. Complete knives, inc one translucent. Burnt house

Museum: Baghdad IM 15076-15080

A910

Obsidian chips and cores Part exported Burnt house; M&R stoneworkers house

Museum: Baghdad IM 15082

Illustration: M&R Pl.XII,b

A911

3 obsidian cores. Burnt house

Museum: Baghdad (1) IM 15083

A913

Pottery discs and spindle whorls. 7 objects (numbered as A-G) 5 ring beads & 2 spindle whorls in Baghdad Also exported. Burnt house

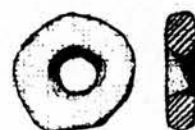
Museum: Baghdad IM 14900

A913a

Pierced pot disc/ring bead. Orange buff fabric, hard fired, medium concentration of fine grey, white and mica grits. It has probably been cut from a sherd but has been very carefully ground down and smoothed so that no sharp edges are visible. Rather well made.

D 23mm Perf D 9mm Th 6mm

Scale 1:2

**A913b**

Pierced pot disc. Dark buff fabric, hard fired with fine black grits. The exterior is well smoothed and was probably once slipped. It has been cut from a sherd, apparently by chipping. All the edges are well smoothed and have been polished, possibly by extensive handling.

D 25mm Perf D 7mm Th 5mm

Scale 1:2



A913c

Pierced pot disc. Well fired buff fabric with few visible grits. The exterior is well-smoothed and probably once slipped. It has been chipped to shape from a sherd and roughly smoothed so that the broken surfaces are still clear. Some corners are very smooth and polished but not all.

D 21mm Perf D 7mm Th 8mm

Scale 1:2

**A913d**

Pierced pot disc. Well fired, dark buff fabric with sparse fine black grits. Cut from a sherd, probably by chipping but all the edges are ground and very well smoothed and polished.

D 23mm Perf D 8mm Th 6mm

Scale 1:2

**A913e**

Ring bead. Medium fired, orange brown fabric with a medium concentration of fine white and black grits. It may have been deliberately made as a ring and wet smoothed, but it is more likely that it was made in a similar manner to A913a-d but ground and polished to be much more regular and smooth. Very nice piece.

D 19mm Perf D 10mm Th 4mm

Scale 1:2

**A913f**

Spindle whorl. Dense, hard fired dark brown fabric. There is a medium concentration of very fine black grits. The surface is well smoothed and neatly made. The hole is cylindrical.

D 30mm Perf D 5mm T 17mm

Scale 1:2

**A913g**

Spindle whorl. Hard fired brown to dark grey brown fabric, fired in a varying atmosphere. Some grey grits but few visible on the surface which is well smoothed. The hole is roughly cylindrical but is not perfect, as though it was made with a rod which was moved as it was being removed before firing or was not quite regular.

Scale 1:2

**A915**

Bone tubes & 1 trumpet shaped grey marble piece. Burnt Room

Museum: I of A 53/374

A915a

Long bone tube, discoloured through burning to a grey-brown through the section and dark brown on the surface. The surface is highly burnished.

One end has been cut and smoothed; there are clear abrasion marks across it. The other end is either less well smoothed or is broken. There are also deep adrasions on the surface around the centre.

L 130mm D 23-25mm

Museum: I of A 53/374 Box 2

Scale 1:4

**A915b**

One end of a tube, apparently similar to A915a. The bone is burnt, dark brown in section and the surface dark brown to black and very highly polished. The surviving end is very worn but has clearly been cut to shape and then extensively worn during some function. The other end is a fresh break—presumably a pick man.

L 46mm D 20-28mm

Museum: I of A 53/374 Box 2

Scale 1:4

**A915c**

One end of a bone tube, apparently similar to A915a.

It is burnt, brown in section and with a mottled light and dark brown surface, highly burnished but less so than with A915a and A915b. There is a small area at one end where the polish has been worn through to a rougher finish. The broken end is at least in part a fresh break. At around the point of the break there are three notches similar to those on A915a.

L 67mm D 19-23mm

Museum: I of A 53/374 Box 2

Scale 1:4

**A915d**

One end of a bone tube, apparently similar to A915a.

It is very similar in detail to A915c although with greater abrasion to the surface and no evidence of the notches.

L 52 D 18-25mm

Museum: I of A 53/374 Box 2

Scale 1:2

**A916**

Large lump of red paint Also exported. Burnt house

L 65mm B 65mm

Museum: Baghdad IM 14966

A918

Conical lead lump. Burnt house

L 20mm H 42mm

Museum: Baghdad IM 14864

A922

Stone or limestone finger bones. 6 total; 3 to Baghdad. 3 exported. All burnt house.

Hs 27, 28, 27, 23, 24 & 24 (broken)

Museum: Baghdad (3) BM (3) IM 15048 BM nos.

127718-127720

Illustration: M&R Pl.X,a, Fig.52,1-2

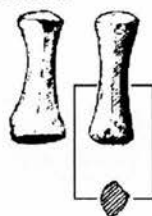
A992a

Burnt bone 'knuckle bone'; it heavily burnt and very light. Very dark brown to black. It seems as though both ends have been worn to some degree, especially around the edges and some of the interior in visible.

L 34mm D 6.5-15mm

Museum: BM 127718 1934-2-10 406

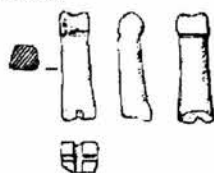
Scale 1:2

**A992b**

Stone 'knuckle bone' made in a light grey, very hard and fine grained stone, slightly veined with a yellow brown. It is neatly made and polished with a D-shaped section. The are grooves in the shape of a cross on the base and a shallow groove across the back of the 'head'. It will not stand upright. There is little sign of wear, although one bottom corner is chipped, or sign of fire damage.

L 28mm B 6-9mm

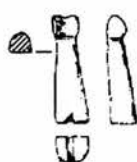
Scale 1:2

**A992c**

Stone 'knuckle' bone. Very similar to A992b except made from a rather yellower stone with dark grey streaks and viens. It is also carefully made with a more marked D-section. It will stand upright unsupported. There is a single groove running across the base.

L 28mm B 4-8.5mm

Scale 1:2

**A1001**

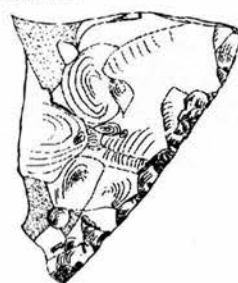
Slabs or parts of slabs of a dark grey to purple tabular flint and the flakes struck from it. Three of the pieces are retouched (scappers? choppers?). There are two other sizable chunks with no retouch and many smaller pieces (20-30), at least one of which conjoins the first retouched piece described below.

Museum: I of A Box marked 'Uncatalogued flint block TT6 BR'

A1001a

Roughly triangular with the long side (155mm) retouched from one side. Areas of cortex on one side. Dark grey to purple. L 150mm B 120mm Th 15mm

Scale 1:4

**A1001b**

Sub-rectangular in plan with a 70mm long retouched edge. The flint is dark grey and the is no cortex remaining. L 90mm B 70mm Th 5mm

A1001c

Irregular in plan with retouch along one edge, 70mm long. Dark grey to purple with some cortex remaining. L 140mm B 75mm Th 11mm

Probable TT6 Burnt House

Artefacts

These are artefacts which are recorded as coming from contexts other than the Burnt House or have no recorded context but in these cases there is good reason to suggest that they were misassigned in the field.

A1003

Scale 1:8

Almost complete plate, reassembled from 12 pieces. The core is light orange, changing to buff nearer the surfaces with very sparse fine to medium white grits. The paint is orange to dark brown.



One side of the plate has been burnt and the paint there is discoloured, especially on the interior. The burning spreads evenly across sherds rather than being confined to certain sherds.

The burning, the vessel shape and decoration suggest that this may have originated from the burnt house but there is no marking on the plate to indicate this.

Rim D 165mm Base D 65mm Ht 53mm Wall Th 4mm
Museum: I of A 53/337

A1004

Scale 1:8

Fragmentary plate of which 15 sherds are preserved. The fabric is orange with very sparse fine white



inclusions. The surface is smoothed but not slipped. The paint is bichrome made up of a red brown and a contrasting brown-black paint. It is marked TT5.

Two of the sherds have evidence of burning which does not occur on conjoining sherds, suggesting similar treatment to the plates known to have come from the burnt house. This, combined with the shape and decoration indicates that the plate almost certainly came from the TT6 Burnt House, although it may originate from a similar context in TT5.

The edges of most of the sherds are clearly worn, unlike any of the observed sherds from TT6.

The damage to the paint on the interior of the vessel is much more marked on the base and lower walls than on the upper walls which suggests that it originates in long use.
Rim D 300mm Base D 120mm Ht 90mm Wall Th 7mm
Museum: Ashmolean 1934.106

Artefacts from TT7 and TT5

These are artefacts, recorded as coming from the levels above or below TT6. Although there is no reason to assume that they originated in TT6, the circumstances of excavation and recording make it very likely that a significant number of them did.

A924

c.Scale 1:8

Pot disc *in situ* in jar neck stuck with bitumen. Disc cut from bowl base with faint trace of rosette. TT7.

D 82mm

Museum: Baghdad IM 14842

Illustration: M&R Fig.49, 23



A584

Scale 1:2

Triangular black steatite seal with linear markings. Various attributed to TT7; Under house 6, outside tholos; Outside tholos in TT6 (?).

Museum: British Museum 127668

Illustration: M&R Fig.50,23 Pl.VII,a



A581

Scale 1:2

Truncated triangle, grey limestone seal; Horizontally ribbed with linear markings. TT7.

L 27mm B 19mm Ht 6mm

Museum: British Museum 127663

Illustration: M&R Fig.50,10 Pl.VII,a



A559

Scale 1:2

Flat, drop shaped, black steatite bead/seal. TT7.

L 26mm B 17mm Ht 3mm

Museum: Baghdad IM 15001

Illustration: M&R Pl.VIII,a



A524

Scale 1:8

Near complete pot with brown paint and buff fabric. TT7, outside tholos.

Rim D 230mm Ht 65mm

Museum: Baghdad IM 15702

Illustration: M&R Pl.XIX,6



A579

Drop shaped amethystine quartz, linear markings on the flat side. TT6-7 loose soil

L 13mm B 12mm

Museum: Baghdad IM 15028

Illustration: M&R Pl.VII,a

A578

Drop shaped, black steatite seal/bead; unmarked and, therefore, unfinished. Convex one side. TT6-7 loose soil.

L 19mm B 12mm

Museum: Baghdad IM 15029

Illustration: M&R Pl.VII,a

A557 Scale 1:2

Flat, triangular, translucent green (quartzite or jadeite?) seal with rough linear markings. TT6-7
L 23mm B 17mm
Museum: I of A 53/458
Illustration: M&R Pl.VIII,a



A041

Unfinished. A few linear markings on the flat side. Dark green stone. TT6-7 South side
L 19mm B 14mm
Museum: British Museum 127657
Illustration: M&R Pl.VIII

A761 Scale 1:4

Complete pot with red brown paint and pink orange fabric. TT5-6 AK.W.C. Denuded portion of Tepe in Sq FeV.1 near A104.
Rim D 84mm Ht 50mm
Museum: Baghdad IM 14752
Illustration: M&R Fig.64,1



A339 Scale 1:3

Slate grey stone Axe. TT5-6 by kiln
L 108mm B 68mm
Museum: British Museum 127758
Illustration: M&R Pl.VIII,b



A419 Scale 1:4

Grey limestone vessel. TT5-6
L 80mm Ht 39mm
Museum: British Museum 127634
Illustration: M&R Fig.44,8



A917 Scale 1:2

Female figurine with red paint on light drab fabric. TT5-6.
L 95mm B 75mm



Museum: Baghdad IM 14863
Illustration: M&R Fig.45,10

A532

Complete pot with red brown paint and pinkish buff fabric. Cross-hatching on belly, solid paint on rim. TT5-6 Edge of Halaf terrace & 50cm below it.
Rim D 130mm Ht 110mm
Museum: I of A 53/302

A336

Dark greenish grey stone Axe. TT5
L 38mm B 28mm
Museum: Baghdad IM 14879
Illustration: M&R Pl.VIII,b

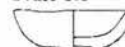
A348

Light green stone axe. TT5
L 26mm B 18mm
Museum: Baghdad IM 15156
Illustration: M&R Pl.VIII,b

A488

Drab unpainted pot. TT5
Ht 28mm
Museum: I of A 53/290
Illustration: M&R Fig.41,4

Scale 1:8



A511

Scale 1:8

Plum red & dark terracotta painted pot with buff fabric. TT5
Ht 45mm
Museum: Louvre 1973
Illustration: M&R Pl.XVI,b



A525

Scale 1:8

Near complete pot with buff slip, black and red paint. TT5
Rim D 85mm Ht 70mm
Museum: British Museum 127555



A580

Ovoid black steatite/stone seal; linear markings on flat side. TT5 loose soil.
L 39mm B 19mm Ht 12mm
Museum: Baghdad IM 15002
Illustration: M&R Pl.VII,a

A881

Scale 1:2

Crescent shaped black steatite seal with linear markings. TT5
L 30mm B 8mm
Museum: British Museum 127669
Illustration: M&R Pl.VII,b Fig.50,26



A940

Scale 1:2

Figurine with black paint and sundried clay fabric. TT5
L 26mm B 17mm
Museum: British Museum 127725
Illustration: M&R Fig.45,16



A1005

Pot. TT5. TT AK WE House 5. unpainted pot with roughly smoothed orange-buff surface.
Rim D 55mm Ht 68mm
Museum: I of A 53/287

Sketch scale c.1:8



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